

SITE SPECIFIC HEALTH AND SAFETY PLAN

FOR

HOLY TRINITY CEMETERY SITE LEWISTON, NEW YORK

PREPARED FOR:

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
EMERGENCY RESPONSE BRANCH
REGION II**

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Appendix A: Safety Data Sheets (SDS) – An inventory of all chemicals and products requiring a Safety Data Sheet will be conducted on the Holy Trinity Cemetery Site. A Safety Data Sheet will be filed for each item and placed into a folder. As additional products are brought on-site the corresponding SDS will be included in the folder. The location of the SDS folder will be made known to Site personnel during the initial orientation.

Acronyms

ACGIH	American Conference of Governmental Industrial Hygienists
AIHA	American Industrial Hygiene Association
ANSI	American National Standards Institute
BBP	Blood borne Pathogen
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CFR	Code of Federal Regulations
COC	Chain of Custody
CPR	Cardiopulmonary Resuscitation
CRZ	Contamination Reduction Zone
DZ	Decontamination Zone
EPA	Environmental Protection Agency
EZ	Exclusion Zone
GES	Guardian Environmental Services Company, Inc.
GFCI	Ground Fault Circuit Interrupter
HASP	Health And Safety Plan
IDLH	Immediately Dangerous to Life or Health
N/A	Not Applicable
NEC	National Electrical Code
NFPA	National Fire Protection Association
NIOSH	National Institute of Occupational Safety and Health
NRR	Noise Reduction Rating
OSHA	Occupational Safety & Health Administration
PDR	Personal DataRAM
PEL	Permissible Exposure Limit
PPE	Personnel Protective Equipment
RAM	Real-time Aerosol Monitors
RCRA	Resource Conservation and Recovery Act
RM	Response Manager
SDS	Safety Data Sheet
SSO	Site Safety Officer
SZ	Support Zone
THAs	Task Hazard Analysis

1 INTRODUCTION AND SITE ENTRY REQUIREMENTS

This document describes the health and safety guidelines developed for work to be performed by Guardian Environmental Services Company, Inc. (GES) as a USEPA Region II ERRS contractor at the Holy Trinity Cemetery Site (HTC), located at 5401 Robert Avenue, Lewiston, New York 14092. The plan is designed to provide measures necessary to protect on-site personnel, visitors, and the public from physical harm and exposures related to the planned work activities. The procedures and guidelines contained herein were based upon the best available information at the time of the plan's preparation. Specific requirements will be revised when new information is received, or conditions change. A written amendment will document all changes made to the plan. Any amendments to this plan will be included as attachments. Where appropriate, specific OSHA, EPA standards, ANSI, NIOSH, ACGIH, EPA's Emergency Responder Health & Safety Plan, and/or other guidance will be cited and applied.

1.1 GENERAL SITE SAFETY RULES

The following are standard safe work practices that apply to all site personnel and will be discussed during the initial site specific orientation and reinforced thereafter during safety briefings prior to initiating work on the site:

- All work will be performed in accordance with requirements and procedures described in GES Corporate Health and Safety Manual.
- Eating, drinking, chewing gum or tobacco, and smoking are prohibited in all work zones.
- The buddy system will be practiced at all times on the Holy Trinity Cemetery Site. During site operations, each worker will consider themselves as a safety backup to their partner.
- ALL incidents, injuries, and near misses will be IMMEDIATELY reported to the RM/SSO, regardless of perceived severity or importance.
- No personnel will be admitted to the Contamination Reduction Zone (CRZ) or Exclusion Zone (EZ) without the proper safety equipment, training and medical surveillance certification.
- All personnel must comply with established site and safety procedures. Any staff member who does not comply with any safety policy, as established by the OSC or RM/SSO, will be immediately dismissed from the site.
- Facial hair, beyond the corner of the mouth which would interfere with the respirator face seal is prohibited on personnel operating in the EZ.
- Proper personal hygiene and decontamination procedures shall be strictly followed at all times.
- All personnel entering the exclusion zone shall sign in and out of EZ log sheet located in the contamination reduction zone (CRZ).
- All safety incidents/accidents will be immediately reported to the RM/SSO.

1.2 DAILY SAFETY MEETINGS

Daily meetings will be held (at the start of each shift) to ensure that: all personnel understand site conditions and operating procedures; personal protective equipment is being used correctly; to address any worker health and safety concerns; anticipated weather concerns; and any new information or potential changes. All new amendments to the Health and Safety Plan will also be reviewed at these meetings. Topics will include: discussions of work activities, potential hazards that may be encountered, and the controls to be implemented to address them. The “tail-gate” meetings will address any changes in work practices or processes, new equipment, or anticipated safety concerns such as inclement weather.

1.3 SITE SAFETY PLAN ACCEPTANCE ACKNOWLEDGMENT

The Response Manager shall be responsible for informing all individuals entering the exclusion zone (EZ) or contamination reduction zone (CRZ) of the contents of this HASP and ensuring that each person signs the Safety Plan Acknowledgment Form. By signing the Safety Plan Acknowledgment Form, individuals are recognizing the potential hazards present on-site, and the policies and procedures that are required to minimize exposure or adverse effects of these hazards. Personnel are also thereby acknowledging, agreeing and consenting to all policies, procedures, regulations, rules and site specific requirements of the HASP.

1.4 TRAINING REQUIREMENTS

All personnel entering the EZ or CRZ on the Holy Trinity Cemetery Site must have completed training requirements for hazardous site work in accordance with OSHA 29 CFR 1910.120 and Hazard Communication training per 29 CFR 1910.1200. In addition to the 40 hours of classroom training in accordance with 29 CFR 1910.120, all field personnel will receive 8 hours of refresher training on an annual basis. The Response Manager shall also have 8 hours of training on safe management of hazardous waste sites. All site employees will have completed required job/task specific training in accordance with OSHA, and GES training requirements. Training requirements may include, but not be limited to: respiratory protection, excavation safety, calibration, use and maintenance of monitoring equipment, PPE, First aid/CPR/AED. Additional training may be necessary once a more thorough site assessment has been completed. The RM will assure that all personnel are properly trained as required prior to job assignment. Copies will be provided for site files if required.

Emergency response to potential dangers will be discussed with all personnel prior to beginning planned work activities on the Holy Trinity Cemetery Site. The RM/SSO shall assign individual team members roles and responsibilities to carry out in the event of an emergency. All team members shall participate in the initial Site specific emergency response planning and discussion to ensure full understanding of procedures, emergency assembly areas (primary and contingency), personal roles and responsibilities, Site communications, location of emergency equipment / First aid / eye wash stations.

Subcontractors may be used for various segments of the work. Training and certification requirements will be relative to their specific task, and subject to GES determination. Documentation of training requirements is the responsibility of each employer. Each individual

must provide evidence of all required training before site entry.

Training Requirements	Type of Training ¹	Personnel to be Trained
Site Specific Health and Safety Plan	R	ALL
Pre-Job Start H&S/SSHASP Briefing	R or C	All
H&S Tailgate Meetings	F	All
General Employee Training (new hire, annual, routine) – GES provided	C	All on site for >10 consecutive days
40 hr. Hazardous Waste Operations and Emergency Response (HAZWOPER) Class and 24 hr. Supervised Fieldwork	C	General site workers per 1926.65(e) (3) (i).
8-hour HAZWOPER annual refresher	C	All – Within 1 year from the previous 40-hour HAZWOPER 8-hour refresher training
8-Hour HAZWOPER Supervisor	C	Response Manager
Fire Extinguisher	C	All
First Aid/Cardiopulmonary Resuscitation (CPR)	C	At least two team members
Personal Protective Equipment (PPE) (Employer's Program and SSHASP)	F	All
Employer Hazard Communication Program	R	All
Site Specific Emergency Response Training	F	All
Heavy Equipment Safety	R,F	All
Site Specific Orientation and Radiation Awareness	R,F	All
¹ Types of Training: R = Read Training; C = Classroom Training; F = Field Training		

1.5 MEDICAL MONITORING REQUIREMENTS

All personnel entering the EZ or CRZ must have completed the required medical monitoring requirements under OSHA 29 CFR 1910.120 (f) and 29 CFR 1926.62(j). Subcontractors may be used for various segments of the work. Medical requirements will be relative to their specific task, and subject to GES determination. All personnel and subcontractors will have successfully completed a physical examination which meets the requirements of OSHA 29 CFR 1926.62 prior to entering work zones. All field personnel must undergo a physical examination annually, which is to be performed by a physician Board-certified in Occupational Medicine. The physician will be made familiar with the job-related duties of each employee examined as well as each employee's anticipated exposure and description of any PPE to be used. In addition, the physician will be provided a copy of OSHA 29 CFR 1926.62, any information from previous examinations, and a copy of Section 5.0 of NIOSH 85-115 if any of these documents are not already in his possession. Additional medical monitoring and exposure assessment requirements may be necessary on the HTC Site once additional site assessments have been completed. If necessary, the appropriate arrangements will be made to ensure site personnel receive the necessary medical monitoring and an amendment will be made to this Health and Safety Plan.

1.6 FIT TESTING REQUIREMENTS

All personnel entering the EZ or CRZ using a full-face air purifying respirator (APR) must have

successfully passed a qualitative or quantitative respirator fit test for a tight fitting respirator. Fit testing shall be performed in accordance with OSHA 29 CFR 1910.134 within the last twelve (12) months. Documentation of fit testing is the responsibility of each employer, the Response Manager shall ensure that all personnel entering the EZ/CRZ have successfully passed a qualitative or quantitative respirator fit test and have supplied a copy of the fit test. Records of all up to date fit tests for Site personnel shall be maintained on-site. All personnel shall be determined fit to wear a respirator by a licensed health care professional prior to respirator use and fit testing.

1.7 SITE ORIENTATION TRAINING

All personnel working on site shall attend a site orientation that includes a review of the HASP including site-specific safety rules and requirements. Personnel accessing the site strictly for deliveries or administrative purposes shall not be required to attend the training. Prior to starting work, each employee will attend a health and safety orientation and will receive information and training which shall include, at a minimum, the following:

- Name of Site Managers and key personnel.
- The location and availability of the written HASP.
- The location and availability of the Safety Data Sheets (SDS) folder.
- Hazardous contaminants that may be encountered on site and associated health effects.
- Decontamination procedures.
- The location of the designated smoking area.
- Site layout and location of physical hazards that may be encountered, such as the following:
- Necessary PPE, training on proper use, storage and task specific levels of protection required for scheduled activities.
- Locations of Emergency phone numbers and map to nearest emergency care facility/hospital/urgent care (Mount St. Mary's Hospital).
- Action levels and situations requiring upgrade or downgrade of level of protection.
- The importance of the Job Safety Analysis program and participation in the process.
- The site Emergency Action Plan and procedures to follow in the event of an incident and the location of the primary and contingency emergency assembly areas, and the site specific emergency alerting procedures.
- Familiarization of work site and location of controlled work zones: Exclusion Zone, Contamination Reduction Zone / Decontamination area, Support Zone and proper decontamination procedures.
- The importance of following the buddy system at all times, personnel will not work alone in isolated areas of the Site.
- ALL incidents, injuries, and near misses will be IMMEDIATELY reported to the RM/SSO, regardless of perceived severity or importance.
- Location of first aid kits, fire extinguishers, eye wash stations, SSHSP, and SDS folder.
- Air monitoring protocol and location results will be posted.
- Site specific training related to all potential hazards unique to the Holy Trinity Cemetery

Site.

1.8 DELIVERY PERSONNEL AND SUPPORT SUBCONTRACTORS

Personnel whose sole purpose is to deliver goods to the support zone shall not be required to meet the training and medical fitness requirements described in this section. Personnel entering the CRZ or EZ specifically for the purpose of delivery or maintenance of equipment are subject to sections 1.5, 1.6 and 1.7 at the discretion of the RM/SSO. Personnel performing site work strictly within the support zone and clean areas of the site are not required to meet the training and medical qualifications but shall attend the site orientation training described in Section 1.7. The site orientation training shall cover the HASP including site hazard communication information.

2 RESPONSIBLE SITE AUTHORITY

2.1 Project Team:

Title	Name	Office	Cell Phone Number
USEPA Region II On Scene Coordinator	Eric Daly	USEPA Region II	908-420-1707
Response Manager	Kevin Shaver	GES Newark, DE	302-518-1910
Health & Safety Manager	Rick Hughes	GES Newark, De	302-803-1205

2.2 PERSONNEL DESCRIPTIONS

2.2.1 EPA On-Scene Coordinator

The OSC for the Holy Trinity Cemetery Site is Eric Daly. The OSC, as the representative of the U.S. EPA, is responsible for directing project mitigation activities and for oversight of health and safety protocols for all individuals on site at all times. All U.S. EPA, Guardian Environmental Services Inc., and subcontractors' health and safety guidelines and requirements, as well as all applicable OSHA standards shall be applied. However, each contractor (as an employer under OSHA) is also responsible for the health and safety of its employees. If there is any dispute with regard to health and safety, the following procedures shall be followed:

1. Attempt to resolve the issue on site; and
2. If the issue cannot be resolved, site personnel shall consult off-site health and safety personnel for assistance and the specific task or operation in dispute shall be discontinued until the issue is resolved.

2.2.2 Response Manager / Site Safety Officer

The Response Manager/Site Safety Officer (RM/SSO) for the Holy Trinity Cemetery Site will be Kevin Shaver. The RM/SSO is responsible for the progress of the work at the project level and overall site Health and Safety. He supervises all project personnel to ensure that all on-site work

is performed in compliance with Site Plans as well as work orders provided by the OSC. The RM/SSO is responsible for daily implementation of the site specific HASP including, but not limited to, changes in PPE, training requirements, policy enforcement, and health/safety monitoring. The RM/SSO is also responsible for decontamination procedures and updating the HASP as job site conditions change. The following are the primary responsibilities of this position:

- Prepares and organizes the background review of the work plan and the field team.
- Obtains permission(s) for site access and coordinates activities with appropriate officials.
- Ensures that work plan is completed and remains on schedule.
- Ensures compliance with the HASP.
- Briefs the field teams on their specific assignments.
- Ensures that safety and health requirements are met. Prepares the final reports and support files on the remedial activities.
- Documents field activities.
- Ensures protective clothing used is consistent with the requirements of the HASP.
- Periodically inspects protective clothing and equipment.
- Ensures that PPE is properly stored and maintained.
- Ensures the proper selection and use of fall protection equipment.
- Controls entry and exit at the Access Control Points.
- Coordinates safety and health program activities with on-site essential personnel.
- Confirms each team member's suitability for work based on a physician's recommendations.
- Generates a task hazard analysis for each project task and ensures that all personnel participate and fully understand the hazards and associated controls.
- Monitors the work parties for signs of work related stressors, such as cold/heat stress, and physical fatigue.
- Monitors and documents on-site hazards and conditions.
- Participates in the preparation of and implementation of the HASP.
- Conducts periodic inspections to determine if the HASP is being followed.
- Enforces the "buddy" work system.
- Ensures decontamination area is set up properly.
- Ensures that all required equipment is available.
- Ensures personnel have adequate training relating to conduct work tasks.
- Advises medical personnel of potential exposures and consequences or effects.
- Is aware of emergency procedures, evacuation routes, and the telephone numbers of emergency services, ambulance service, local hospital, poison control center, fire department, and police department.

2.2.3 Field Team Members

All team members are responsible for asking questions to ensure a complete understanding of the site-specific HASP. By signing the Safety Plan Acknowledgment Form, individuals are

recognizing the potential hazards present on the Holy Trinity Cemetery Site, and expressing understanding in both the hazards and the processes necessary to minimize exposures. Further, individuals are expressing understanding of all site specific policies, procedures, rules and regulations as set forth in this HASP and agreeing to comply with such.

Field Team Members shall:

- Report any unsafe or potentially hazardous conditions to the RM/SSO.
- Comply with rules, regulations, and procedures as set forth in this HASP.
- Express safety ideas or concerns in the daily safety meetings.
- Perform all tasks safely.
- Perform JSA under the direction of the RM/SSO.
- Utilize “Stop Work Authority” if required.

2.2.4 Subcontractors

Each subcontractor is responsible for constant communication with the GES Response Manager in order to assign specific work tasks to their employees. Each subcontractor will provide qualified employees and allocate sufficient time, materials and equipment to safely complete their assigned tasks. In particular, each subcontractor is responsible for providing and equipping their personnel with any required personal protective equipment (PPE).

GES considers each subcontractor to be fully knowledgeable in all aspects of the work operations they are contracted to provide and each subcontractor is responsible for compliance with all regulatory requirements that pertain to those services. Each subcontractor is expected to perform their operations in accordance with their own unique safety policies and procedures in order to ensure that hazards associated with the performance of the work activities are properly controlled. Copies of any required safety documentation governing safety and health requirements for a subcontractor’s work activities will be provided to GES for review and approval prior to the start of onsite activities if requested or required.

Hazards not listed in this HASP (but known to any subcontractor) or known to be associated with a subcontractor’s services must be identified and addressed to the RM/SSO prior to beginning work. The RM/SSO has the authority to halt any subcontractor operations and to remove any subcontractor or subcontractor employee from the site for failure to comply with established health and safety procedures or for operating in an unsafe manner.

SITE CHARACTERISTICS

2.3 SITE BACKGROUND AND CONDITION

In a 1978 U.S. Department of Energy (U.S. DOE) aerial radiological survey, more than 15 properties throughout the region were identified as having elevated levels of radiation above background. It is believed that, in the early 1960s, slag from the local Union Carbide facility was used as fill on the properties prior to paving. The slag contained sufficient quantities of uranium and thorium to be classified as a licensable radioactive source material. Based on the original

survey and subsequent investigations, it is believed that the radioactive Union Carbide slag was deposited at the Holy Trinity Cemetery property.

The Holy Trinity Cemetery site is bordered: to the north and east by Interstate 190; to the south by another cemetery; and to the west by Robert Avenue and a residential area. The site consists of two areas of radionuclide contamination located at a cemetery of approximately 31.5 acres in Lewiston, New York. The first area of contamination (Area 1) is about 2.8 acres (119,137 square feet). The area of observed contamination is located in the northernmost portion of the property and north of the only building at the site. This area is on a relatively flat and slightly elevated grassy field, as well as on existing roadbeds. The building south of the first contaminated area is utilized as a residence, a chapel and cemetery maintenance facility. The second area of contamination (Area 2) is a roadway located on the eastside of the property. This area is about 0.4 acres (15,845 square feet) in size.

Analytical results obtained from New York State, USEPA Pre-Remedial Program and USEPA Removal Program assessments indicate that material comprising the earthen layer of the majority of this site property is contaminated with radionuclides significantly higher than at background conditions (i.e., greater than 2x background concentrations).

2.4 FORMER SITE ASSESSMENTS

In February 1980, the New York State Department of Health (NYSDOH) Bureau of Radiological Health and the Niagara County Health Department conducted a radiological survey of the Site to identify areas of elevated radioactivity as a result of radioactive slag having been used on the property for fill. The survey was conducted based on information that the slag used at the cemetery was from the same source used at two other locations in nearby Niagara Falls, which had been identified by the NYSDOH as containing elevated levels of radioactivity. During the survey, cemetery personnel showed NYSDOH a slag pile located near the caretaker's garage in the western portion of the property. Cemetery personnel stated that this slag was used as fill for the cemetery roads throughout the property. Additionally, the slag was used as fill for the base of two proposed roadbeds that extended approximately 500 to 600 feet from the caretaker's garage, northwest toward Robert Avenue. At the time of the survey, the construction of these roads had been abandoned. The underlying slag base was covered with an unknown amount of soil and was left as an open field. Using an Eberline PRM 7 radiation meter, radioactivity of the slag pile was measured at 250 microroentgens per hour (μ R/hr) and readings along cemetery roads ranged from 5 μ R/hr (i.e., background concentration) to 30 μ R/hr. Readings along the abandoned roadbeds ranged from 200 μ R/hr to 400 μ R/hr. Samples of the slag were collected as part of the investigation. Laboratory analyses of the samples indicated detectable concentrations of potassium-40, uranium-235 and -238, radium-226, thorium-232, and one other isotope.

In October 2006, the New York State Department of Environmental Conservation (NYSDEC) and the Niagara County Health Department conducted a reconnaissance of the Site. At that time, the slag pile that previously had been observed near the caretaker's garage was no longer on the Site; the current caretaker had neither knowledge of the slag pile, nor what happened to it. The caretaker also indicated that children living nearby use this area for recreation. Since the 1980

NYSDOH site investigation, trees had grown through the abandoned slag roadbeds, pushing the slag to the surface. As part of the site visit, NYSDEC conducted a radioactivity survey with an Exploranium GR-135. Readings taken while walking along the roadbed indicated levels of 200 μ R/hr to 450 μ R/hr at waist height and a surface contact reading of 450 μ R/hr to 570 μ R/hr; a contact reading of 700 μ R/hr at exposed slag near a tree was also documented. NYSDEC collected four samples of the slag which were analyzed for isotopic uranium and isotopic thorium, and underwent gamma-ray spectroscopy analysis. Laboratory analytical results indicated the presence of uranium-238/234 ranging from 114 picocuries per gram (pCi/g) to 1,664 pCi/g and thorium-232 ranging from 114 pCi/g to 898 pCi/g.

In May 2007, NYSDEC visited the Site to identify contamination in an on-site debris pile using gamma-ray spectroscopy. During a 5-minute static reading, radium-226 was the only nuclide identified. A similar analysis was also conducted on one of the roadbeds confirming the presence of thorium-232.

During a reconnaissance performed by the NYSDOH and NYSDEC in July 2013, screening activities at the Site along the roadway and along the back roadway leading off site showed radiation levels up to 51 μ R/hr in the roadway with the pressurized ion chamber (PIC) and up to 50,000 counts per minute (cpm) with the sodium iodide (NaI) 2x2 detector.

On December 12 and 13, 2013, Weston Solutions, Inc., Site Assessment Team (SAT) personnel collected a total of 14 subsurface soil samples and three slag samples from the Site. Soil samples were also collected from two locations suspected to be outside the influence of the area of observed contamination to document background conditions. At each sample location, soil samples were collected directly beneath slag material; at locations where a radioactive layer was not visually observed to be present, the soil sample was collected at the equivalent depth interval. The slag samples each consisted of one single piece of slag. The soil samples were analyzed by Test America Laboratories for target analyte list (TAL) metals analysis; isotopic thorium, isotopic uranium, radium-226, and radium-228 by alpha spectroscopy; and radioisotopes by gamma spectroscopy. The slag samples were analyzed for the same parameters, with the exception of TAL metals analysis. One soil sample for TAL metals analysis was designated as a matrix spike/matrix spike duplicate (MS/MSD) sample for quality assurance/quality control (QA/QC) purposes. One rinsate blank was collected to demonstrate adequate decontamination of non-dedicated sampling equipment (i.e., cutting shoe). Analytical results indicate concentrations of radionuclides in all slag samples and seven soil samples (including the field duplicate) to be significantly higher than at background conditions.

On May 1, 2014, SAT personnel collected radon and thoron concentration measurements from locations on and in the vicinity of the Site. At the selected locations in background areas, above the source material, and off the source area, radon and thoron concentration measurements in pCi/L were collected with RAD7 radon detectors. The radon and thoron measurements were collected at heights of one meter above the ground surface. The measurements included uncertainty values, which were taken into account to calculate adjusted concentrations for evaluation of observed release in the air migration pathway. There were no radon or thoron

concentrations that exceeded the site-specific background, nor were there any adjusted concentrations that equaled or exceeded a value two standard deviations above the mean site specific background concentration for that radionuclide in that type of sample (i.e., there is no evidence of an observed release to air from Site sources).

2.5 SCOPE OF WORK

The purpose of this Task Order is to eliminate the threat of exposure and off-site migration of elevated gamma radiation located throughout the site. Analytical results obtained from New York State, USEPA Pre-Remedial Program and USEPA Removal Program assessments indicate that material comprising the earthen layer of the majority of this site property is contaminated with radionuclides significantly higher than at background conditions (i.e., greater than 2x background concentrations). During this phase of operations, tasks will be centered on securing the site (installing fencing) and locating underground utilities. GES, as the prime contractor to the US EPA, will conduct these activities through self-performance and/or sub-contracting. GES, acting as the prime contractor, is responsible for preparing and maintaining the site specific HASP. In addition to providing the HASP, GES shall provide all necessary personnel, equipment and materials to perform the Statement of Work set forth below.

- Mobilization
- Initial Site setup
- Locate and mark the location of underground utilities.
- Conduct limited clearing and grubbing operations
- Installation of a 6 foot chain link fence topped with three strands of barbed wire
- Site Demobilization

These operations will be performed in a safe and efficient manner in accordance with GES Procedures as well as all applicable regulations found in 29 CFR 1910 and 29 CFR 1926.

3 PERSONAL PROTECTION EQUIPMENT

Engineering and administrative controls will be employed on the Holy Trinity Cemetery Site to eliminate and/or minimize exposure potential to the extent practicable. When identified hazards cannot be engineered out of the task, and safe work practices and other forms of administrative controls cannot provide sufficient protection or separation from the exposures, the last method of control is the use of personal protective equipment.

3.1 DESCRIPTION OF PROTECTION LEVELS

3.1.1 Level C

EQUIPMENT REQUIRED:

- Full face, air purifying respirator with P100 HEPA cartridge
 - o Cartridges shall be changed daily unless any of the following occur:

- Cartridge becomes hard to breathe through due to reaching capacity;
- When the indicator strip designates change needed
- Break-through occurs and you can smell or taste the warning property of the contaminant in the respirator.
- Manufacturer recommends otherwise.
- Tyvek® coveralls with taped seams, elastic hoods, wrists, and ankles (hoods will be taped to respirator face pieces)
- Coveralls/ Uniform
- Class II high visibility vest
- Steel toe boots, disposable boot covers (taped)
- Hard hat
- One pair of 4-mil nitrile inner gloves
- One pair of 15-mil nitrile outer gloves (gloves will be taped to the outer suit)
- Hearing protection when necessary.
- Two way communication device.
- Inner (sample gloves) and outer work gloves depending on the application.
- Disposable boot covers
- Hard hat
- Hearing Protection when necessary

PROTECTION PROVIDED:

Level C provides the same level of skin protection as Level B, but a lower level of respiratory protection.

SHOULD BE USED WHEN:

- All criteria for the use of air-purifying respirators are met.

LIMITING CRITERIA:

- Atmospheric concentration of chemicals must not exceed IDLH levels.
- The atmosphere must contain at least 20.0 percent oxygen.

3.1.2 Modified Level D

EQUIPMENT REQUIRED:

- Tyvek® coveralls with taped seams, elastic hoods, wrists, and ankles
- Coveralls/ Uniform
- Class II high visibility vest
- Steel toe boots, disposable boot covers (taped)
- Hard hat

- One pair of 4-mil nitrile inner gloves
- One pair of 15-mil nitrile outer gloves (gloves will be taped to the outer suit)
- Hearing protection when necessary.
- Inner and outer chemical-resistant gloves
- Chemical-resistant safety toe boots with disposable shoe covers
- Hard hat
- Safety Glasses
- Hearing Protection when necessary

OPTIONAL:

- Face shield
- Chemical Splash Goggles

PROTECTION PROVIDED:

Protection from dust and contaminated surfaces where respiratory hazards have been characterized to below established exposure limits or site action levels.

SHOULD BE USED WHEN:

- The atmosphere contains no known hazard.
- Work functions involve splashes or immersion.
- Modified Level D should be used when no atmospheric hazards exist but potential for dermal exposure is expected.

LIMITING CRITERIA:

- Modified Level D should only be worn where respiratory hazards have been characterized and determined to be below established exposure limits or site action levels.
- May not be used in areas where respiratory hazards exist or may be expected to develop.

3.1.3 Level D

Level D shall only be worn in non-contaminated active work areas of the site.

EQUIPMENT REQUIRED:

- Proper fitting long pants in good repair with belt or suspenders as needed.
- Minimum 4" sleeve shirt
- High visibility class II vest

- Safety toe work boots
- Safety glasses with side shields
- Hard hat
- Hearing Protection when necessary

OPTIONAL:

- Leather Gloves
- Face shield

PROTECTION PROVIDED:

Level D provides minimal skin protection.

SHOULD BE USED WHEN:

- The atmosphere contains no known hazard.
- Work functions preclude splashes, immersion, or the potential for unexpected inhalation of or contact with hazardous levels of any chemical.

LIMITING CRITERIA:

- No respiratory protection provided.

3.1.4 Respiratory Protection

This health and safety plan procedure serves as the procedure for the use of respirators on the Holy Trinity Cemetery Site. The upgrade level of protection will be Level C utilizing full face respirators with a P-100 HEPA cartridge. Exposures are not anticipated to be above the established action levels; however a conservative approach shall be taken to ensure personnel are adequately protected until additional information is learned regarding Site specific conditions and potential exposures.

3.1.5 Continuing respirator effectiveness

The RM/SSO is responsible for conducting daily site inspections. Daily site inspections shall include surveillance of work place conditions. In particular the following conditions shall be assessed:

1. Potential changes in contaminant concentration;
2. Changes in employee exposure levels;
3. Respirator effectiveness.

3.1.6 Training

Employees may be trained in a recent 40-hour or Emergency Response training course (within the last year), or a recent 8-hour refresher-training course, which covers the use of respiratory protection (within the last year).

3.1.7 Fit Testing

Before site personnel use any respirator with a negative or positive pressure tight-fitting face piece, the individual must be fit tested with the same make, model, style, and size of respirator that will be used. Any modifications to the respirator face piece for fit testing shall be completely removed, and the face piece restored to NIOSH-approved configuration, before that face piece can be used in the workplace.

3.1.8 Fit testing period

Fit test results are good for a period of one year. If an employee using a tight-fitting face piece respirator will be assigned a different respirator face piece (size, style, model or make) the fit testing must be repeated. Fit test results are voided whenever an employee experiences a change in physical condition that could affect respirator fit. Such conditions include, but are not limited to:

- Facial scarring
- Significant weight loss / gain
- Dental changes
- Cosmetic surgery

3.1.9 Use of Respirators

Employees are not allowed to use respirators with tight-fitting face pieces under following circumstances:

- Facial hair that comes between the sealing surface of the respirator and the face where it prevents a proper seal.
- Any condition that interferes with the ability of the respirator to form a proper seal and / or the valve function to operate properly.
- If an employee wears corrective glasses, obtain the appropriate spectacle kit and have it fitted with prescription lenses

3.1.10 General Inspection and Repairs

Respirators shall be checked for proper function before and after each use and during cleaning prior to exiting the CRZ. Ensure that all cartridges are clearly labeled and color-coded with the NIOSH approval label. Respirators that fail an inspection or are otherwise found to be defective should be immediately removed from service. Repairs to respirators are to be made only by persons appropriately trained to perform such operations (this does not include routine

adjustments).

3.1.11 Respirator cartridges changes

All cartridge changes must be done in the Contamination Reduction Zone (CRZ). P-100 HEPA filter cartridges shall be changed at least every 8 hours (full shift) of use.

Employees shall also be advised that the cartridges must be changed immediately upon any of the following conditions.

- Breathing becomes difficult. This condition is usually caused in dusty conditions as well as areas of high humidity which will cause the cartridge to collect contaminants quicker.
- Manufacturer recommendations must also be consulted to assure proper use and change.

3.1.12 Cleaning and Disinfecting

Whenever respirators are doffed, employees shall wash their faces and respirator face pieces in order to prevent eye or skin irritation. Cleaning shall be accomplished by using the manufacturer's recommended cleaning solution.

3.1.13 Storage

All respirators shall be stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals.

3.2 TASK-SPECIFIC LEVELS OF PROTECTION

FIELD ACTIVITIES COVERED UNDER THIS PLAN				
TASK DESCRIPTION	TYPE	PRIMARY	CONTINGENCY	ADDITIONAL INFORMATION(*)
1. Mobilization	Non-Intrusive	Level D	Modified D	<ul style="list-style-type: none">Begin work Level DUpgrade to Modified D if contact hazard present
2. Initial Site Setup	Non-Intrusive	Level D	Modified D	<ul style="list-style-type: none">Begin work Level DUpgrade to Modified D if contact hazard present
3. Conduct clearing and grubbing activities with brush hog	Intrusive	Level C	Modified D	<ul style="list-style-type: none">Primary Level C PPE – Full Face Respirator using P-100 HEPA cartridgeModified Level D with Dust Mask based on monitoring results
4. Locate and mark the location of underground utilities.	Non-Intrusive	Level D	Modified D	<ul style="list-style-type: none">Begin work Level DUpgrade to Modified D if contact hazard present
5. Installation of 6 foot fence	Non-Intrusive	Level D	Modified D	<ul style="list-style-type: none">Begin work Level DUpgrade to Modified D if contact hazard present
6. Site demobilization	Non-Intrusive	Level D		<ul style="list-style-type: none">Begin work Level DUpgrade to Modified D if contact hazard present

- Refer to Section 4.4.2 Preliminary Task Hazard Analysis for further information.

4 SITE HAZARDS

4.1 CHEMICAL HAZARDS

Previous investigations and evaluations of the HTC Site have provided information on the potential hazards that may be encountered. Based upon this information, the primary contaminants of concern that may present an exposure hazard are isotopic uranium 238/234, thorium 232, and their daughter products. During this phase of operations the planned work activities are not anticipated to present an occupational exposure hazard. However, as a conservative approach team members will be issued personal dosimetry monitoring devices to record any potential external exposures.

Radiological surveys will be performed by WESTON Solutions to evaluate radiological conditions and provide technical guidance. Radiological surveys will identify if additional control procedures are required, or if an upgrade in personal protective equipment is necessary. Survey data will also be used to develop ALARA planning, including the usage of time, distance, and shielding to limit radiation exposure.

GES intends to keep all employee radiation exposure levels as low as reasonably achievable. Team members will use a combination of engineering controls, administrative controls, and personal protective equipment to limit external and internal radiation doses. Basic protection control measures that apply include:

- Reducing exposure time
- Increasing distance from the radiation source
- Using a shielding when possible between the radiation source and employees
- Eating, drinking, and smoking are not permitted in potentially contaminated areas
- Washing hands when leaving a contaminated area and before eating is required
- Team members with open cuts or abrasions are not allowed to handle contaminated material because handling may allow entry of the material into the bloodstream.

4.1.1 Alpha Particles

Alpha particles are given off by uranium-238, radium-226 and other members of the uranium-238 decay series. Alpha particles do not travel far from their source, generally no more than 12 inches in air, can be stopped by solid materials the thickness of a piece of paper, and travel relatively slowly due to their electric charge and large mass. The health effects of alpha particles depend heavily upon how exposure takes place. External exposure (external to the body) is of far less concern than internal exposure, because alpha particles lack the energy to penetrate the outer layer of dead skin. However, if alpha emitters have been inhaled, ingested (swallowed) or absorbed into the blood stream, sensitive living tissue can be exposed to alpha radiation. The resulting biological damage increases the risk of cancer; in particular, alpha radiation is known to cause lung cancer in humans when alpha emitters are inhaled. The greatest exposure to alpha radiation for average person comes from the inhalation of radon and its decay products, several of which also emit alpha radiation.

4.1.2 Beta Particles

Beta particles are subatomic particles ejected from the nucleus of some radioactive atoms. They are equivalent to electrons. Often, gamma ray emission accompanies the emission of a beta particle. Beta particles travel several feet in open air and are easily stopped by solid materials.

4.1.3 Gamma Radiation

A gamma ray is a packet of electromagnetic energy known as a photon. Gamma photons are the most energetic photons in the electromagnetic spectrum. Gamma rays are emitted from the nucleus of some unstable (radioactive) atoms. Because of their high energy, gamma photons travel at the speed of light and can cover hundreds to thousands of meters in air before spending their energy. They can pass through many kinds of materials, including human tissue. Very dense materials, such as lead, are commonly used as shielding to slow or stop gamma photons. Most exposure to gamma and x-rays is direct external exposure. Most gamma and x-rays can easily travel several meters through air and penetrate several centimeters in tissue. Some have enough energy to pass through the body, exposing all organs. Because of the gamma ray's penetrating power and ability to travel great distances, it is considered the primary hazard during

most radiological emergencies.

4.1.1 Chemical Hazards Summary

4.1.1.1 Radium

Radium is a naturally occurring radioactive metal that exists as one of several isotopes. It is formed when uranium and thorium decay in the environment. In the natural environment, radium is found at low levels in soil, water, rocks, coal, plants, and food. In the early 1900s, radium was wrongly used to treat rheumatism and mental disorders and as a general tonic. Radium was also used to make luminous paints for watch dials, clocks, glow in the dark buttons, and military instruments. The use of radium for these purposes was discontinued because of the health hazards from these types of exposures. Radium has also been widely used in radiation treatment of cancer, but this use has largely been replaced by other radioactive materials or methods. Radium-226 has also been used in medical equipment, gauges, and calibrators, and in lightning rods. Alpha emitters such as radium and plutonium can be used as components of a neutron generator.

Radium is not a stable element. As radium decays, it releases radiation and forms decay products. Like radium, many of these decay products also release radiation and form other elements. The decay process continues until a stable, nonradioactive decay product is formed. Radiation is released during the decay process in the form of alpha particles, beta particles, and gamma radiation. Alpha particles can travel only short distances and cannot penetrate human skin. Beta particles are generally absorbed in the skin and do not pass through the entire body. Gamma radiation, however, can penetrate the body. Isotopes of radium decay to form radioactive isotopes of radon gas. The time required for a radioactive substance to lose 50 percent of its radioactivity by decay is known as the half-life. The half-lives are 3.5 days for radium-224, 1,600 years for radium-226, and 6.7 years for radium-228, the most common isotopes of radium, after which each forms an isotope of radon. Radon is known to accumulate in homes and buildings.

Since radium is present at relatively low levels in the natural environment, everyone has some level of exposure from it. However, individuals may be exposed to higher levels of radium and its associated external gamma radiation if they live in an area where there is an elevated level of radium in soil. Radium can enter the body when it is inhaled or swallowed. Radium breathed into the lungs may remain there for months; but it will gradually enter the blood stream and be carried to all parts of the body, with a portion accumulating in the bones. If radium is swallowed in water or with food, most of it (about 80 percent) will promptly leave the body in the feces. The other 20 percent will enter the blood stream and be carried to all parts of the body. Some of this radium will then be excreted in the feces and urine on a daily basis; however, a portion will remain in the bones throughout the person's lifetime.

Radon, a decay product of radium, can also be measured in air that is exhaled from the body. Another technique, gamma spectroscopy, can measure the amount of radioactivity in portions of the body. These tests require special equipment and cannot be done in a doctor's office. There is

no test that can detect external exposure to radium's gamma radiation alone. Exposure to radium over a long period may result in many different harmful effects. If inhaled as dust or ingested as a contaminant, risk is increased for several diseases, including lymphoma, bone cancer, and hematopoietic (blood-formation) diseases, such as leukemia and aplastic anemia. These effects take years to develop. If exposed externally to radium's gamma radiation, risk of cancer is increased in essentially all tissues and organs, though to varying degrees. However, in the environment, the greatest risk associated with radium is actually posed by its direct decay product radon. Radon has been shown to cause lung cancer.

4.1.1.2 Radon

Radon is a naturally occurring radioactive gas without color, odor, or taste that undergoes radioactive decay and emits ionizing radiation. Radon comes from the natural (radioactive) breakdown of uranium and thorium in soil, rock, and groundwater and is found all over the U.S. The largest fraction of the public's exposure to natural radiation comes from radon, mostly from soil under home. The primary source of radon is from uranium in soils and rocks and in groundwater. Over time, uranium decays into radium, which then decays directly into radon. Uranium is present naturally in all soil, although quantities differ from place to place. Because radon is a gas and chemically unreactive with most materials, it moves easily through very small spaces, such as those between particles of soil and rock, to the soil surface. Radon is also moderately soluble in water, and it can be absorbed by groundwater flowing through rock or sand. Radon undergoes radioactive decay, when it releases ionizing radiation and forms "daughter" elements, known as decay products. It is the release of radiation from this decay process that leads to exposure and health risks from radon.

During the decay process, radiation is released in the form of alpha particles, beta particles, and gamma rays. Alpha particles can travel only short distances and cannot penetrate human skin. However, when inhaled, they can penetrate the cells lining the lungs. Beta particles penetrate skin, but cannot pass through the entire body. Gamma radiation can travel all the way through the body. The health risk associated with each type of radiation is a function of how and what parts of the body are exposed. The time required for a radioactive substance to lose 50 percent of its radioactivity by decay is known as the half-life. The half-life of uranium-238 is about 4.5 billion years. The half-life of radon is 3.8 days. Outside air typically contains very low levels of radon (about 0.4 picocuries per liter [pCi/L] of air).

Radon and its radioactive daughters can enter the body through inhalation and ingestion. Inhaling radon is the main route of entry into the body, with most of the radon being exhaled again. However, some radon and its daughter products will remain in the lungs, where radiation released during the decay process passes into the lung tissues, causing damage. Radon is also produced in the body from parent radium deposited in the body. Exposure to radon and its daughters increases the chance that a person will develop lung cancer. The increased risk of lung cancer from radon primarily results from alpha particles irradiating lung tissues. Most of the damage is not from radon gas itself, which is removed from the lungs by exhalation, but from radon's short-lived decay products (half-life measured in minutes or less). When inhaled, these decay products may be deposited in the airways of the lungs, especially if attached to dust

particles, and subsequently emit alpha particles as they decay further, resulting in damage to cells lining the airways.

Radon is considered a known human carcinogen based on extensive studies of exposure to human beings. In two 1999 reports, the National Academy of Sciences (NAS) concluded that radon in indoor air is the second leading cause of lung cancer in the U.S. after cigarette smoking. The NAS estimated that the annual number of radon-related lung cancer deaths in the U.S., is about 15,000 to 22,000. NAS also estimated that radon in drinking water causes about 180 cancer deaths each year in the United States. Approximately 89 percent of these cancer deaths are caused by lung cancer from inhalation of radon released to indoor air from the water, and about 11 percent are a result of cancers of internal organs, mostly stomach cancers, from ingestion of radon in water.

4.1.1.3 Thorium

Thorium is a naturally occurring radioactive metal that is found at low levels in soil, rocks, water, plants, and animals. Almost all naturally occurring thorium exists in the form of either radioactive isotope thorium-232, thorium-230, and thorium-228. There are more than 10 other thorium isotopes that can be artificially produced. Smaller amounts of these isotopes are usually produced as decay products of other radionuclides and as unwanted products of nuclear reactions.

Thorium is used to make ceramics, lantern mantles, welding rods, camera and telescope lenses, and metals used in the aerospace industry. Thorium-232 is not a stable isotope. As thorium-232 decays, it releases radiation and forms decay products that include radium-228 and thorium-228. The decay process continues until a stable, nonradioactive decay product is formed. In addition to thorium-232, thorium-228 is present naturally in background. Thorium-228 is a decay product of radium-228, and thorium-228 decays into radium-224. The radiation from the decay of thorium and its decay products is in the form of alpha and beta particles and gamma radiation. Alpha particles can travel only short distances and cannot penetrate human skin. Beta particles are generally absorbed in the skin and do not pass through the entire body. Gamma radiation, however, can penetrate the body.

The time required for a radioactive substance to lose 50 percent of its radioactivity by decay is known as the half-life. The half-life of thorium-232 is very long at about 14 billion years. As a result of the extremely slow rate of decay, the total amount of natural thorium in the earth remains fairly constant, but it can be moved from place to place by natural processes and human activities.

Since thorium is present at very low levels almost everywhere in the natural environment, everyone is exposed to it in air, food, and water. Normally, very little of the thorium in lakes, rivers, and oceans is absorbed by the fish or seafood that a person eats. The amounts in the air are usually small and do not constitute a health hazard. Exposure to higher levels of thorium may occur if a person lives near an industrial facility that mines, mills, or manufactures products with thorium.

Thorium-232 on the ground is of a health risk because of the rapid build-up of radium-228 and

its associated gamma radiation. Thorium-232 is typically present with its decay product radium-224, which will produce radon-220 gas, also known as thoron, and its decay products that result in lung exposure. Thorium-230 is part of the uranium-238 decay series. Thorium-230 is typically present with its decay product radium-226, and it is therefore a health risk from gamma radiation from radium-226 decay products, lung exposure from radon-222 gas and its decay products, and inhalation and ingestion exposure.

Thorium can enter the body when it is inhaled or swallowed. In addition, radium can come from thorium deposited in the body. Thorium enters the body mainly through inhalation of contaminated dust. If a person inhales thorium into the lungs, some may remain there for long periods of time. In most cases, the small amount of thorium left in the lungs will leave the body in the feces and urine within days. If thorium is swallowed in water or with food, most of it will promptly leave the body in the feces. The small amount of thorium left in the body will enter the bloodstream and be deposited in the bones, where it may remain for many years.

Studies of workers have shown that inhaling thorium dust will cause an increased risk of developing lung disease, including lung cancer, or pancreatic cancer. Liver disease and some types of cancer have been found in people injected in the past with thorium to take special X-rays. Bone cancer is also a potential health effect through the storage of thorium in the bone.

4.2 PHYSICAL HAZARDS

4.2.1 Slips, Trips, and Falls

A thorough hazard assessment will be conducted at the Holy Trinity Cemetery Site upon initial mobilization to identify all concerns and hazards onsite and will be continued thereafter proactively in all work areas. Personnel shall take extra precaution when maneuvering on-site and pay close attention to potential trip hazards. Team members will conduct inspections of individual work areas and travel paths. If a hazard cannot be immediately addressed it should be flagged with a ribbon or yellow construction/caution tape to identify the hazard or barricaded if necessary. Properly storing equipment/tools and removing debris and materials from established walking paths are precautions that will be standard operating procedures. Whenever possible, walking surfaces will be designated and maintained to provide as level as possible of a walking surface. If areas are to be used repeatedly for foot traffic such as access to storage, rest areas, and support facilities it will be required to designate and maintain proper access to these locations.

Precautions:

- Stumbling while carrying loads. NEVER carry items in a position that blocks your vision.
- Use footwear with ankle support and soles that grip.
- Don't carry heavy loads, use hauling equipment/drum cart or ask your buddy for assistance.
- Practice good housekeeping.
- Fill in or mark hidden holes in ground in staging area.

- Establish travel paths or walkways through work areas. Keep them clear to minimize trip hazards. Remove dropped objects from pathways immediately.
- Ensure that additional equipment brought to the location does not create or pose additional slip, trip and fall hazards.
- Keep electric cords and cables out of travel paths and walkways. If this is not feasible, protect the cord to avoid creating trip hazards and to prevent damage to the cords, cables and lines.
- Establish barriers and/or mark areas around known hazards such as holes and overhead hazards.
- Take extra care when stepping onto unstable or uneven surfaces, and onto surfaces where the hazard cannot be seen (e.g., underwater surfaces).
- Clean up spilled material as soon as practical to avoid creating a slip hazard.
- Install steps and ramps and properly maintain them. Include slip-resistant treads and smooth handrails that will not cause punctures or lacerations.
- Closely inspect ladders and steps to ensure steps are free and clear of sediment, grease, oil or debris that could cause a slipping hazard.

4.2.2 Back Strain / Material Handling

Mechanical means of lifting is the most preferred method and should be used whenever possible when handling heavy or bulky loads. When a mechanical means of lifting is not available, proper lifting techniques shall be used. Personnel shall lift with their legs, keeping their backs straight, and loads close to their bodies. Avoid twisting at the waist during lifting. Personnel shall receive help from others when loads appear to be too heavy or bulky. Extreme care should be taken when lifting and handling heavy or bulky items to avoid back injuries.

The following fundamentals address the proper lifting techniques that are essential in preventing back injuries:

- The size, shape, and weight of the object to be lifted must first be considered.
- Multiple employees or the use of mechanical lifting devices are required for heavy objects.
- The anticipated path to be taken by the lifter should be considered for the presence of slip, trip, and fall hazards.
- The feet will be placed far enough apart for good balance and stability (typically shoulder width).
- The worker will get as close to the load as possible. The legs will be bent at the knees.
- The back will be kept as straight as possible and abdominal muscles should be tightened.
- Twisting motions should be avoided when performing manual lifts.
- To lift the object, the legs are straightened from their bending position.
- A worker will never carry a load that cannot be seen over or around.

When placing an object down, the stance and position are identical to that for lifting. The legs are bent at the knees and the object lowered. When two or more workers are required to handle the same object, workers will coordinate the effort so that the load is lifted uniformly and that the

weight is equally divided between the individuals carrying the load. When carrying the object, each worker, if possible, will face the direction in which the object is being carried. In handling bulky or heavy items, the following guidelines will be followed to avoid injury to the hands and fingers:

- A firm grip on the object is essential; leather gloves will be used if necessary.
- The hands and object will be free of oil, grease, and water which might prevent a firm grip. The fingers will be kept away from any points that could cause them to be pinched or crushed, especially when setting the object down.
- The item will be inspected for metal slivers, jagged edges, burrs, and rough or slippery surfaces prior to being lifted.

4.2.3 Overhead Hazards

Investigation of all access routes shall be conducted immediately upon arrival to ensure all routes leading into the site are safe from potential overhead hazards. This shall be conducted prior to the delivery of both equipment and materials on-site. In the event of a low hanging line, the local electric company in Lewiston shall be immediately contacted and the transport of equipment will be staged at a safe distance until representatives with the electric company gives assurance that the line in question has been addressed. All power lines shall be treated as live wires until assured safe by the electric company. Proper clearances must be maintained at all times. Equipment shall not deviate from established travel ways or work areas where clearances are unknown/ insufficient.

4.2.4 Heavy Equipment

Only those personnel who are trained, qualified, and given the express consent of the Response Manager are allowed to operate equipment. Daily inspections of heavy equipment will be conducted to insure all safety and operating mechanisms are in place and working properly (i.e., backup alarm, fire extinguisher, brakes, controls, etc.). This inspection will be documented and kept on file for review. Hand signals will be established and ground personnel shall communicate with the operator before entering and upon leaving that operator's work area. The swing radius of any piece of equipment must be established and at no time are ground personnel to enter that area when the equipment is in operation.

4.2.5 Subsurface Investigations

All buried utilities shall be identified before any intrusive work in the work area begins. At no time shall any attempt to locate a buried utility be made by using mechanically powered excavating equipment. Buried utilities shall be located by proper detection equipment. The local utility company and Public Works Department in Lewiston shall be contacted (716-754-8331) along with one call to Dig Safely New York (811) or 1-800-524-7603 will be made in advance of planned work activities and work areas will be marked out for all utility providers to clearly see and locate.

4.2.6 Noise

Areas or equipment emitting noise at or above 85 DBA shall be evaluated to determine feasible engineering controls. When engineering controls are not feasible, administrative controls can be developed and appropriate hearing protection will be provided. A selection of hearing protection will be maintained on site for personnel to choose from and will be maintained in a clean and reliable condition. A good rule of thumb to keep in mind is if you have to raise your voice to talk to coworkers standing only three feet away, you are likely subjected to noise exposures exceeding 85 decibels and should use hearing protection.

4.2.7 Electrical

Upon initial arrival on the Holy Trinity Cemetery Site, the RM will ensure that the one call to Dig Safely New York (811) or 1-800-524-7603 has been placed in advance of planned work activities. Only qualified personnel are authorized to work on electrical circuits or repair any electrical equipment. GES Lock Out-Tag Out procedures shall be used before any maintenance is performed. Extension cords will be inspected daily and all damaged cords will be taken out of service (tagged and removed from Site). Ground fault circuit interrupters (GFCI) will be used on all temporary electrical circuits (i.e., generators, etc.). Electrical cords not specifically made for water submersion will be kept out of wet areas. Electrically operated equipment may present the hazard of electrical shock, especially due to potentially wet operating environments. If using equipment or portable tools that are electrically powered, follow the safety precautions listed below:

- Lock out/tag out all energized equipment before performing maintenance on the equipment.
- Check to see that electrical outlets used to supply power during field operations are of the three wire grounding type.
- Extension cords used for field operations should be of the three wire grounding type and designed for hard or extra-hard usage. This type of cord uses insulated wires within an inner insulated sleeve and will be marked S, ST, STO, SJ, SJO, or SJTO.
- Never remove the ground plug blade to accommodate ungrounded outlets.
- Do not use extension cords as a substitute for fixed or permanent wiring. Do not run extension cords through openings in walls, ceilings, or floors. Extension cords are not to be permanently attached to walls with staples, nails, etc.
- Protect the cord from becoming damaged, paying special attention at locations where the cord is run through doorways, windows or across pinch points.
- Examine extension and equipment cords and plugs prior to each use. Damaged cords with frayed insulation or exposed wiring and damaged plugs with missing ground blades Must Be removed from service immediately. The cord / equipment should be tagged and removed from the site.
- All portable or temporary wiring which is used outdoors or in other potentially wet or damp locations must be connected to a circuit which is protected by a ground fault circuit interrupter (GFCI). GFCI's are available as permanently installed outlets, as plug-in adapters and as extension cord outlet boxes. Do not continue to use a piece of equipment or extension cord which causes a GFCI to trip.

- Do not touch a victim who is still in contact with current. Separate the victim from the source using a dry, nonmetallic item such as a broomstick or cardboard box. Be sure your hands are dry and you are standing on a dry surface. Turn off the main electrical power switch and then begin rescue efforts.

4.2.8 Small Quantity Flammable/Combustible Materials

Small quantities of flammable/ combustible materials shall be stored in “safety” cans with appropriate flame arrestors, self-closing lids, and labeled according to their contents. Plastic type fuel cans are not acceptable for any reason.

4.3 ENVIRONMENTAL HAZARDS

Personnel have the potential to be exposed to cold stress during planned work activities on the Holy Trinity Cemetery Site.

4.3.1 Cold Stress

Wearing appropriate clothing and being aware of how your body is reacting to the cold are important to preventing cold stress. Avoiding alcohol, certain medications and smoking can also help to minimize the risk. Protective clothing is the most important way to avoid cold stress. The type of fabric also makes a difference, cotton loses its insulation value when it becomes wet. Wool, silk and most synthetics, on the other hand, retain their insulation even when wet. The following are recommendations for working in cold environments:

- Wear layers of clothing that may easily be shed throughout the day. An inner layer of wool, silk or synthetic to wick moisture away from the body. A middle layer of wool or synthetic to provide insulation even when wet. An outer wind and rain protection layer that allows some ventilation to prevent overheating if necessary.
- Wear a hat or hood. Up to 40% of body heat can be lost when the head is left exposed.
- Wear insulated boots or other footwear.
- Keep a change of dry clothing available in case work clothes become wet.
- With the exception of the wicking layer do not wear tight clothing. Loose clothing allows better ventilation of heat away from the body.
- Do not underestimate the wetting effects of perspiration. Often times wicking and venting of the body’s sweat and heat are more important than protecting from rain or snow.

Personnel should drink plenty of liquids, avoiding caffeine and alcohol. It is easy to become dehydrated in cold weather. If possible, heavy work should be scheduled during the warmer parts of the day. Closely follow the buddy system and avoid fatigue since energy is needed to keep muscles warm. Take frequent breaks and consume warm, high calorie food such as pasta to maintain energy reserves.

4.3.2 Severe Weather

The weather will be closely monitored by the response manager and arrangements made to ensure that site personnel are prepared for inclement weather. Anticipated weather conditions will be discussed in the morning safety meetings and any pertinent information will be shared

with team members. In the event of inclement weather, particularly an electrical storm, operations will be temporarily suspended until the system passes.

During severe weather, outdoors operations will be stopped under these conditions:

- **Lightning** within 20 miles of the site. Lightning has been known to strike within a radius of 8 miles from cloud to ground. Depending on the severity of the storm the speed at which it can move into the immediate area can be swift therefore notification of work stoppage to all crews must be immediate. Crews shall discontinue operations, meet at a predetermined staging area and wait for further instructions.
 - In evaluating the time when it is safe for crews to resume work, the following method will be used. The supervisor will wait 30 minutes after the first lightning strike to evaluate the weather conditions. The 30-minute wait clock will be reset after each additional lightning strike.
- **Heavy Precipitation** that affects visibility, mobility, or the overall conditions in which equipment and personnel can operate safely.
- **Sustained Wind** in excess of 20 MPH may create hazardous conditions when excavating test pits. The wind can cause dust from the excavation to become airborne and cause eye irritation as well as spread contamination off site. Dust suppression methods may not be as effective due to the drying effect of the wind.

After the heavy weather has left the area, the RM/SSO will determine that operations can continue in a safe manner. The “all clear” signal will be given and personnel will return to work.

4.3.3 Historical Weather Averages for Lewiston, New York.

Monthly Weather Averages & Records for Lewiston, New York - °F °C						
Date	Average Low	Average High	Record Low	Record High	Average Precipitation	Average Snow
January	17°	31°	-15° (1996)	65° (2005)	2.55"	NA
February	17°	33°	-9° (1993)	70° (2000)	2.32"	NA
March	25°	42°	-9° (1993)	79° (1998)	2.63"	NA
April	35°	55°	16° (1995)	93° (1990)	2.46"	NA
May	46°	69°	28° (2004)	88° (1991)	2.94"	NA
June	55°	76°	38° (1998)	96° (2002)	3.26"	NA
July	61°	82°	44° (2001)	97° (2005)	2.69"	NA
August	59°	80°	44° (2000)	95° (2001)	3.03"	NA
September	51°	72°	26° (2000)	93° (2002)	3.52"	NA

October	40°	60°	24° (2002)	81° (1997)	2.67"	NA
November	32°	48°	13° (2000)	72° (1996)	2.98"	NA
December	23°	37°	-7° (1993)	68° (1998)	2.88"	NA
APRIL Daily Weather Averages & Records for Lewiston, New York - °F °C						
Date	Average Low	Average High	Record Low	Record High	Average Precipitation	Average Snow
Apr 1	30°	49°	20° (1995)	64° (1998)	0.08"	NA
Apr 2	31°	49°	25° (1992)	65° (1994)	0.08"	NA
Apr 3	31°	49°	23° (1991)	77° (1999)	0.08"	NA
Apr 4	31°	50°	19° (1995)	65° (1991)	0.08"	NA
Apr 5	31°	50°	16° (1995)	71° (1997)	0.08"	NA
Apr 6	32°	51°	20° (2003)	74° (1997)	0.08"	NA
Apr 7	32°	51°	19° (2007)	74° (1991)	0.08"	NA
Apr 8	32°	52°	20° (1994)	75° (1991)	0.08"	NA
Apr 9	33°	52°	19° (1997)	76° (2001)	0.08"	NA
Apr 10	33°	52°	19° (1997)	66° (2005)	0.08"	NA
Apr 11	34°	53°	24° (2007)	73° (2002)	0.08"	NA
Apr 12	34°	53°	25° (1990)	67° (2002)	0.08"	NA
Apr 13	34°	54°	22° (1992)	81° (2001)	0.08"	NA
Apr 14	35°	54°	24° (1992)	69° (1998)	0.08"	NA
Apr 15	35°	55°	23° (2007)	84° (1994)	0.08"	NA
Apr 16	35°	55°	28° (1990)	81° (2002)	0.08"	NA
Apr 17	36°	56°	29° (2003)	78° (2002)	0.08"	NA
Apr 18	36°	56°	27° (2001)	81° (2002)	0.08"	NA
Apr 19	36°	57°	25° (2001)	79° (2002)	0.08"	NA
Apr 20	37°	57°	29° (1997)	79° (2003)	0.08"	NA
Apr 21	37°	57°	29° (1997)	72° (1992)	0.08"	NA

Apr 22	37°	58°	28° (1994)	75° (2004)	0.08"	NA
Apr 23	38°	58°	24° (2002)	74° (1990)	0.08"	NA
Apr 24	38°	59°	26° (2003)	83° (2001)	0.08"	NA
Apr 25	38°	59°	28° (1999)	79° (1990)	0.09"	NA
Apr 26	39°	60°	27° (2006)	82° (1990)	0.09"	NA
Apr 27	39°	60°	26° (1993)	85° (1990)	0.09"	NA
Apr 28	39°	61°	24° (2002)	93° (1990)	0.09"	NA
Apr 29	40°	61°	30° (2006)	84° (1990)	0.09"	NA
Apr 30	40°	62°	31° (2001)	77° (2004)	0.09"	NA

MAY Daily Weather Averages & Records for Lewiston, New York - °F | °C

Date	Average Low	Average High	Record Low	Record High	Average Precipitation	Average Snow
May 1	40°	62°	33° (2002)	85° (2001)	0.09"	NA
May 2	41°	63°	31° (1994)	83° (2001)	0.09"	NA
May 3	41°	64°	28° (1994)	84° (2001)	0.09"	NA
May 4	41°	64°	28° (2004)	83° (2001)	0.09"	NA
May 5	42°	64°	31° (2005)	84° (1999)	0.09"	NA
May 6	42°	65°	34° (1992)	86° (1999)	0.09"	NA
May 7	42°	65°	29° (2006)	79° (2000)	0.09"	NA
May 8	43°	66°	31° (1997)	80° (2000)	0.09"	NA
May 9	43°	66°	39° (2003)	82° (2000)	0.09"	NA
May 10	43°	67°	36° (1994)	84° (1995)	0.09"	NA
May 11	44°	67°	33° (2002)	82° (2001)	0.09"	NA
May 12	44°	68°	36° (1990)	85° (1992)	0.09"	NA
May 13	44°	68°	32° (1994)	85° (2004)	0.09"	NA
May 14	45°	68°	32° (1994)	82° (1991)	0.09"	NA
May 15	45°	69°	35° (1996)	85° (1998)	0.09"	NA

May 16	46°	69°	36° (2000)	87° (1991)	0.09"	NA
May 17	46°	69°	36° (2005)	85° (1999)	0.09"	NA
May 18	46°	70°	32° (1997)	86° (1999)	0.1"	NA
May 19	47°	70°	32° (2002)	84° (1996)	0.1"	NA
May 20	47°	70°	32° (2002)	85° (1996)	0.1"	NA
May 21	47°	71°	34° (2002)	84° (1992)	0.1"	NA
May 22	48°	71°	35° (1990)	84° (1991)	0.1"	NA
May 23	48°	71°	35° (2006)	88° (1991)	0.1"	NA
May 24	48°	72°	38° (2006)	82° (1991)	0.1"	NA
May 25	49°	72°	36° (2002)	83° (1991)	0.1"	NA
May 26	49°	72°	38° (1997)	78° (1991)	0.1"	NA
May 27	49°	72°	34° (1994)	78° (1990)	0.1"	NA
May 28	50°	73°	38° (1997)	83° (1991)	0.1"	NA
May 29	50°	73°	39° (2004)	84° (1999)	0.1"	NA
May 30	50°	73°	37° (1993)	86° (1999)	0.1"	NA
May 31	51°	73°	39° (2001)	84° (1999)	0.11"	NA

4.4 TASK HAZARD ANALYSIS PROCESS

Task hazard analysis (THA) is a technique used to identify hazards and hazard controls associated with a specific job function. THAs focus on the relationship between the workers, task, and the resources required to complete the task, and the work environment. These variables must be evaluated to identify the potential hazards associated with each task. Once identified, steps can be taken to eliminate, reduce, or control the hazards to an acceptable level of risk. The Preliminary Activity hazard Analysis included below in section 4.4.2 are provided as the basic structure of the hazard analysis based on the known hazards associated with the individuals tasks that were known at the time they were generated. These analyses should be used as an initial guide to help assess the risks and determine the controls of each major project task. On the day of the activity, the Response Manager/Site Safety Officer and the members of the crew shall complete the process by defining the individual steps required to perform the job, the hazards associated with each step, along with the current site specific conditions to accurately determine the appropriate controls and preventive measures for each hazard identified

This analysis process conducted with the experienced workers and supervisors as a group helps

identify previously undetected hazards and increase the job knowledge of those participating. Safety and health awareness is raised, communication between workers and supervisors is improved, and acceptance of safe work procedures is promoted. Once the activity hazard analysis is completed, generally a rough draft, all personnel involved in the task shall sign the form. These completed AHA's shall be attached to Appendix B of this Site Specific Health and Safety Plan. After hazards have been systematically identified and controls are developed, the emphasis shifts to methods that can be used to help ensure that all controls stay in place and other hazards do not develop.

4.4.1 Unanticipated Work Activities / Conditions

Operations on the Holy Trinity Cemetery Site may require additional tasks not identified or addressed in this HASP. Before performing any task not covered in this HASP, a THA must be prepared by the Job Forman/supervisor along with the crew personnel that will be involved in the task. The Health and Safety Manager should be notified of any major changes in the scope of work or unanticipated developments that may require an amendment to the Health and Safety Plan.

4.4.2 Preliminary Task Hazard Analysis

TASK DESCRIPTION: Task 1. Mobilization/ Setup		Personnel: Three		
HAZARD ANALYSIS CONDUCTED BY: Rick Hughes		DATE: April 14, 2016		
PHYSICAL HAZARD IDENTIFICATION:				
<input checked="" type="checkbox"/> PHYSICAL EXERTION	<input type="checkbox"/> HEAT STRESS	<input checked="" type="checkbox"/> COLD STRESS	<input checked="" type="checkbox"/> HEAVY EQUIPMENT	
<input type="checkbox"/> FIRE HAZARDS	<input checked="" type="checkbox"/> LIFTING HAZARDS	<input checked="" type="checkbox"/> SLIP, TRIP, OR FALL	<input checked="" type="checkbox"/> HIGH NOISE (> 85 dB)	
<input checked="" type="checkbox"/> OVERHEAD UTILITIES	<input type="checkbox"/> EXCAVATION/TRENCHING	<input type="checkbox"/> CONFINED SPACE	<input type="checkbox"/> POISONOUS PLANTS	
<input type="checkbox"/> POISONOUS/HAZARDOUS ANIMALS	<input checked="" type="checkbox"/> ELECTRICAL	<input checked="" type="checkbox"/> HAND/POWER TOOLS	<input checked="" type="checkbox"/> PUNCTURE/LACERATION	
<input type="checkbox"/> OXYGEN DEFICIENT	<input type="checkbox"/> PRESSURIZED CONTAINERS	<input type="checkbox"/> EXPLOSIVE	<input type="checkbox"/> VISIBILITY	
<input checked="" type="checkbox"/> VEHICLE TRAFFIC	<input type="checkbox"/> WELDING, CUTTING, BRAZING	<input type="checkbox"/> GLARE/LIGHT HAZARDS	<input type="checkbox"/> SPLASH	
<input type="checkbox"/> GRINDING	<input type="checkbox"/> FLYING DEBRIS	<input checked="" type="checkbox"/> PINCH/GRAB/ROLL	<input type="checkbox"/> TEMPERATURE HAZARDS	
<input type="checkbox"/> OTHER (SPECIFY) : _____				
CHEMICAL HAZARD IDENTIFICATION:				
<input type="checkbox"/> CORROSIVE	<input type="checkbox"/> VOLATILE	<input type="checkbox"/> OXIDIZER	<input type="checkbox"/> TOXIC	
<input type="checkbox"/> RADIOACTIVE	<input type="checkbox"/> BIOLOGICAL	<input type="checkbox"/> INERT	<input type="checkbox"/> REACTIVE	
<input type="checkbox"/> FLAMMABLE	<input type="checkbox"/> COMBUSTIBLE	<input type="checkbox"/> NON-HAZARDOUS	<input type="checkbox"/> POISON A (GAS)	
<input type="checkbox"/> OTHER (SPECIFY) : _____				
PERSONAL PROTECTIVE EQUIPMENT:				
LEVEL OF PROTECTION	RESPIRATORY PROTECTION	PROTECTIVE CLOTHING	GLOVES	HEAD/FACE/EYE PROTECTION
PRIMARY: Level D	None	Proper fitting long pants in good repair; minimum 4" sleeves, Class II high visibility vest	Leather or cotton work-glove.	Hard Hat, Safety Glasses, Hearing Protection
CONTINGENCY: Modified D	None	Tyvek® Coverall w/Hood	Leather or cotton work-gloves	Hard Hat, Safety Glasses, Hearing Protection
PPE:	Level D to Modified D		Date:	April 14, 2016

Hazard Rating:	Medium	Created by:	Rick Hughes
HAZARD	SOURCE	SEVERITY	CONTROL MEASURES
Physical Exertion/Lifting Hazards	Materials / Equipment	Moderate	Use proper lifting techniques and body mechanics such as keeping back straight, using legs to lift, limiting twisting, using mechanical means where possible, and getting help when handling bulky items.
Electrocution	Overhead/Underground Utilities	Moderate	An investigation shall be conducted upon initial arrival to the HTC Site to ensure all access routes are safe from potential overhead hazards. This shall be conducted prior to the delivery of both equipment and materials on-site. In the event of a low hanging line, the local electric company in Lewiston shall be immediately contacted and the transport of equipment will be staged at a safe distance until representatives with the electric company gives assurance that the line in question has been addressed. All power lines shall be treated as live wires until assured safe by the electric company. Equipment shall not deviate from established travel ways or work areas where clearances are unknown/ insufficient. Excavators, large trucks and other similar equipment shall not operate closer than 10 feet from an overhead power line. Identify all on-site utilities prior to any site activities. The local utility company and Public Works Department in Lewiston shall be contacted (516-656-2973) along with one call to Dig Safely New York (811) or 1-800-524-7603 will be made in advance of planned excavation activities and work areas will be marked out for all utility providers to clearly see and locate.
Struck By	Vehicle Traffic/ Unloading Equipment and materials.	Moderate	Locate a flat, level, open area clear of overhead utilities and obstructions to unload equipment and materials, always chock wheels. Personnel shall wear class II high visibility vests. Be alert to material and equipment loading/unloading hazards and moving equipment. Use a spotter to aid in unloading and to watch for overhead and backing hazards, and pedestrian/vehicular traffic.
Lacerations	Site Set-up	Moderate	Always use the correct tool for the job. Inspect hand tools prior to use, wear leather gloves at all times. Practice the buddy system at all times.
Accidents / crash	Personnel Driving to and from project	Moderate	Personnel shall drive defensively at all times. Learn the safest route to and from job site, leave early to allow sufficient time to arrive safely. Personnel Shall closely follow speed limits travel to and from the Holy Trinity Cemetery Site. Contact the GES Health and Safety Manager to report personnel driving dangerously.

Crushed/ Pinch Point	Heavy Equipment	Moderate	All clearances for above and surrounding areas will be checked before operations begin. The use of a ground spotter will be implemented. The ground personnel shall be aware of the equipment's swing radius and pinch points and will stay clear of those areas. A communication system will be developed and instituted between ground personnel and the equipment operator. No personnel will be carried on equipment not equipped with passenger seats.
Cold Stress	Environment	Moderate	Personnel shall be trained on the signs and symptoms of cold stress. An effective work/rest schedule will be implemented to regulate weather exposures. Fluids will be provided. Employees will be encouraged to refrain from alcohol use after work hours.
Fire/Explosion Hazards	Heavy Equipment	Moderate	Prior to refueling any equipment, shut off the equipment and allow the engine to cool. Ensure the fueling area is well ventilated. Do not smoke while refueling. Keep open flames and sparks away from area. Know where the fire extinguishers are located. Do not leave equipment unattended while fueling. Equipment will not be positioned in dry vegetation in such a manner that could create a fire.
Shock / Electrocutation	Electrical Equipment, Extension cords	Low	All extension cords will be inspected before use for damage and removed from service if damage is found. Ground fault circuit interrupters shall be used on all 110-120-240 circuits
Puncture / Laceration	Pinch Points, Hand Traps, lacerations	Moderate	Proper hand protection will be worn to minimize the possibility of injuries due to cuts and abrasions. Potential pinch points will be identified and marked to avoid injury. Think before placing hands into hazards areas, near moving parts.
Hearing Loss	Loud noises	Low	Use of hearing protection will be worn when employees are exposed to high noise levels (greater than 85 dBA over an 8-hour workday). If you have to raise your voice to speak to your co-worker from a distance of approximately 3 feet away in order to be heard / understood, you should wear hearing protection.
Back Injury	Moving equipment, lifting materials	Moderate	Use proper lifting techniques and body mechanics. Use mechanical equipment where possible. Get plenty of rest. Personnel shall use proper lifting techniques such as keeping back straight, using legs to lift, limiting twisting, using mechanical means where possible, and getting help when handling bulky items.

TASK DESCRIPTION: Task 2. Initial site setup		Personnel: Three			
HAZARD ANALYSIS CONDUCTED BY: Rick Hughes		DATE: April 14, 2016			
PHYSICAL HAZARD IDENTIFICATION:					
<input checked="" type="checkbox"/> PHYSICAL EXERTION	<input type="checkbox"/> HEAT STRESS	<input checked="" type="checkbox"/> COLD STRESS	<input type="checkbox"/> HEAVY EQUIPMENT		
<input type="checkbox"/> FIRE HAZARDS	<input checked="" type="checkbox"/> LIFTING HAZARDS	<input checked="" type="checkbox"/> SLIP, TRIP, OR FALL	<input type="checkbox"/> HIGH NOISE (> 85 dBA)		
<input checked="" type="checkbox"/> OVERHEAD UTILITIES	<input type="checkbox"/> EXCAVATION/TRENCHING	<input type="checkbox"/> CONFINED SPACE	<input type="checkbox"/> POISONOUS PLANTS		
<input type="checkbox"/> POISONOUS/HAZARDOUS ANIMALS	<input checked="" type="checkbox"/> ELECTRICAL	<input checked="" type="checkbox"/> HAND/POWER TOOLS	<input checked="" type="checkbox"/> PUNCTURE/LACERATION		
<input type="checkbox"/> OXYGEN DEFICIENT	<input type="checkbox"/> PRESSURIZED CONTAINERS	<input type="checkbox"/> EXPLOSIVE	<input type="checkbox"/> VISIBILITY		
<input checked="" type="checkbox"/> VEHICLE TRAFFIC	<input type="checkbox"/> WELDING, CUTTING, BRAZING	<input type="checkbox"/> GLARE/LIGHT HAZARDS	<input type="checkbox"/> SPLASH		
<input type="checkbox"/> GRINDING	<input type="checkbox"/> FLYING DEBRIS	<input checked="" type="checkbox"/> PINCH/GRAB/ROLL	<input type="checkbox"/> TEMPERATURE HAZARDS		
<input type="checkbox"/> OTHER (SPECIFY) : _____					
CHEMICAL HAZARD IDENTIFICATION:					
<input type="checkbox"/> CORROSIVE	<input type="checkbox"/> VOLATILE	<input type="checkbox"/> OXIDIZER	<input type="checkbox"/> TOXIC		
<input type="checkbox"/> RADIOACTIVE	<input type="checkbox"/> BIOLOGICAL	<input type="checkbox"/> INERT	<input type="checkbox"/> REACTIVE		
<input type="checkbox"/> FLAMMABLE	<input type="checkbox"/> COMBUSTIBLE	<input type="checkbox"/> NON-HAZARDOUS	<input type="checkbox"/> POISON A (GAS)		
<input type="checkbox"/> OTHER (SPECIFY) : _____					
PERSONAL PROTECTIVE EQUIPMENT:					
LEVEL OF PROTECTION	RESPIRATORY PROTECTION	PROTECTIVE CLOTHING	GLOVES	HEAD/FACE/EYE PROTECTION	FOOT PROTECTION
PRIMARY: Level D	None	Appropriate work attire, full length pants in good repair, minimum 4" sleeves. High visibility Class II vest	Leather Work Gloves	Hard Hat and Safety Glasses	Steel toe rubber boots
CONTINGENCY: Modified D	None	Tyvek® (all seams must be taped/sealed)	Nitrile inner, Leather outer gloves	Hard Hat, Safety Glasses, Hearing Protection if noise hazard present.	Steel toe rubber boots/booties with taped seams.

PPE:	Level D to Modified D	Date:	April 14, 2016
Hazard Rating:	Medium	Created by:	Rick Hughes
HAZARD	SOURCE	SEVERITY	CONTROL MEASURES

Shock / electrocution	Utilities – underground / overhead	Moderate	Identify all on-site utilities prior to any site activities. Identify all on-site utilities prior to any site activities. The local utility company and Public Works Department in Lewiston shall be contacted (716-754-8331) along with one call to Dig Safely New York (811) or 1-800-524-7603 will be made in advance of planned work activities and work areas will be marked out for all utility providers to clearly see and locate.
Physical Exertion/Lifting Hazards	Materials / Equipment	Low	Use proper lifting techniques and body mechanics such as keeping back straight, using legs to lift, limiting twisting, using mechanical means where possible, and getting help when handling bulky items.
Cold Stress	Seasonal temperatures / Personal protective equipment	Moderate	Personnel shall be trained on the signs and symptoms of cold stress. An effective work/rest schedule will be implemented to regulate weather exposures. Fluids will be provided. Employees will be encouraged to refrain from alcohol use after work hours. The buddy system will be closely followed and personnel will monitor each other for the signs and symptoms of cold stress.
Puncture / Laceration	Hand Tools, Pinch Points, Hand Traps	Moderate	Proper hand protection will be worn to minimize the possibility of injuries due to cuts and abrasions. Always use the right tool for the right job, inspect all tools and equipment prior to beginning task. Potential pinch points will be identified and marked to avoid injury. Think before placing hands into hazards areas, near moving parts.
Slips, trips, Falls	Site terrain	Moderate	A thorough hazard assessment will be conducted to identify any concerns and hazards onsite and will be continued thereafter proactively. Personnel will use caution while walking on-site and maintain awareness of changes in elevation, and holes. Proper housekeeping procedures should be followed at all times.
Hearing Loss	Loud noises	Low	Use of hearing protection will be worn when employees are exposed to high noise levels (greater than 85 dBA over an 8-hour workday). If you have to raise your voice to speak to your co-worker from a distance of approximately 3 feet away in order to be heard / understood, you should wear hearing protection.

TASK DESCRIPTION: Task 3. Clearing and grubbing operations

HAZARD ANALYSIS CONDUCTED BY: Rick Hughes **DATE:** April 14, 2016

PHYSICAL HAZARD IDENTIFICATION:

<input checked="" type="checkbox"/> PHYSICAL EXERTION	<input type="checkbox"/> HEAT STRESS	<input checked="" type="checkbox"/> COLD STRESS	<input checked="" type="checkbox"/> HEAVY EQUIPMENT
<input type="checkbox"/> FIRE HAZARDS	<input checked="" type="checkbox"/> LIFTING HAZARDS	<input checked="" type="checkbox"/> SLIP, TRIP, OR FALL	<input checked="" type="checkbox"/> HIGH NOISE (> 85 dBA)

<input checked="" type="checkbox"/> OVERHEAD UTILITIES	<input type="checkbox"/> EXCAVATION/TRENCHING	<input type="checkbox"/> CONFINED SPACE	<input checked="" type="checkbox"/> POISONOUS PLANTS
<input checked="" type="checkbox"/> POISONOUS/HAZARDOUS ANIMALS	<input type="checkbox"/> ELECTRICAL	<input checked="" type="checkbox"/> HAND/POWER TOOLS	<input checked="" type="checkbox"/> PUNCTURE/LACERATION
<input type="checkbox"/> OXYGEN DEFICIENT	<input type="checkbox"/> PRESSURIZED CONTAINERS	<input type="checkbox"/> EXPLOSIVE	<input type="checkbox"/> VISIBILITY
<input type="checkbox"/> VEHICLE TRAFFIC	<input type="checkbox"/> WELDING, CUTTING, BRAZING	<input type="checkbox"/> GLARE/LIGHT HAZARDS	<input type="checkbox"/> SPLASH
<input type="checkbox"/> GRINDING	<input checked="" type="checkbox"/> FLYING DEBRIS	<input checked="" type="checkbox"/> PINCH/GRAB/ROLL	<input type="checkbox"/> TEMPERATURE HAZARDS
<input type="checkbox"/> OTHER (SPECIFY) : _____			

CHEMICAL HAZARD IDENTIFICATION:

<input type="checkbox"/> CORROSIVE	<input type="checkbox"/> VOLATILE	<input type="checkbox"/> OXIDIZER	<input type="checkbox"/> TOXIC
<input checked="" type="checkbox"/> RADIOACTIVE	<input type="checkbox"/> BIOLOGICAL	<input type="checkbox"/> INERT	<input type="checkbox"/> REACTIVE
<input type="checkbox"/> FLAMMABLE	<input type="checkbox"/> COMBUSTIBLE	<input type="checkbox"/> NON-HAZARDOUS	<input type="checkbox"/> POISON A (GAS)
<input type="checkbox"/> OTHER (SPECIFY) : _____			

PERSONAL PROTECTIVE EQUIPMENT:

LEVEL OF PROTECTION	RESPIRATORY PROTECTION	PROTECTIVE CLOTHING	GLOVES	HEAD/FACE/EYE PROTECTION	FOOT PROTECTION
PRIMARY: LEVEL C	Full-face respirator with P-100 HEPA cartridge	Tyvek® (all seams must be taped/sealed)	Cut resistant Leather gloves	Hard Hat, hearing protection if necessary	Steel toe work boot, w/ disposable covers with taped seams
CONTINGENCY: Modified D	Dust mask	Tyvek® (all seams must be taped/sealed)	Cut resistant Leather gloves	Hard Hat, safety glasses, hearing protection if necessary	Steel toe work boot, w/ disposable covers with taped seams

PPE:	Level C	Date:	April 14, 2016
Hazard Rating:	Medium	Created by:	Rick Hughes

HAZARD	SOURCE	SEVERITY	CONTROL MEASURES
Radiation	Dust stirred up during clearing operations	Moderate	Due to the potential for dust to be stirred up during clearing operations, personnel will wear Level C protection using a full face Respirator to protect against potential inhalation and ingestion of radiological contamination. Team members will be issued personal dosimetry monitoring devices to record any potential external exposures. Radiological surveys will be performed by WESTON Solutions to evaluate radiological conditions and provide technical guidance. Radiological surveys will identify if additional control procedures are required, or if an upgrade in personal protective equipment is necessary. Survey data will also be used to develop ALARA planning, including the usage of time, distance, and shielding to limit radiation exposure. GES intends to keep all employee radiation exposure levels as low as reasonably achievable. Team members will use a combination of engineering controls, administrative controls, and personal protective equipment to limit external and internal radiation doses. Basic protection control measures that apply include:
Stings, allergic reactions	Poison Ivy, stinging insects, wasps/bees	Low	Team members that are not allergic to poisonous vegetation and stinging insects should conduct a thorough survey of each work area prior to beginning task. Identify team members allergic to wasps/ bees or other environmental hazards. Pay close attention for evidence of poison ivy and wasp nests. Personnel who have experiences allergic reactions in the past should exercise caution. If unavoidable, protect skin when working in proximity to poison ivy. Use products such as Ivy Block or similar. Identify individuals allergic to bees or other environmental hazards.
Laceration/cut	Brush Hog	Moderate	Only trained and certified operators will operate the skid steer with brush hog attachment. The operator of the brush hog will read and follow all of the manufactures guidelines for safe operation of the brush hog. All equipment will be properly locked and tagged out prior to maintenance / inspection. Personnel will make sure no hanging items, shirt tails, necklaces, etc. come in close vicinity of operating equipment / moving parts. Hearing protection will be worn when necessary around heavy equipment.
Struck By	Flying debris from brush hog	Moderate	Ground personnel will remain at a safe distance during operation of the brush hog and remain alert to potential flying debris. Prior to operating the equipment, the operating will conduct an inspection of the skid steer and brush hog attachment and make sure the equipment is proper working order and all guards are in place and functional.

Caught in / between	Heavy Equipment	Moderate	A communication system will be developed and instituted between ground personnel and the equipment operator. Personnel will signal the operator and wait for an acknowledgement and the equipment to come to a complete stop, prior to approaching.
Cold Stress	Environment	Low	Personnel shall be trained on the signs and symptoms of cold stress. An effective work/rest schedule will be implemented to regulate weather exposures. Fluids will be provided. Employees will be encouraged to refrain from alcohol use after work hours. The buddy system will be closely followed and personnel will closely monitor each other for signs and symptoms of cold stress.
Puncture / Laceration	Pinch Points, Hand Traps, debris on-site	Moderate	Proper hand protection will be worn to minimize the possibility of injuries due to cuts and abrasions. Potential pinch points will be identified and marked to avoid injury. Think before placing hands into hazards areas, near moving parts.
Hearing Loss	Loud noise	Low	Use of hearing protection will be worn when employees are exposed to high noise levels (greater than 85 dBA over an 8-hour workday). If you have to raise your voice to speak to your co-worker from a distance of approximately 3 feet away in order to be heard / understood, you should wear hearing protection.
Back Injury	Moving equipment, lifting materials	Moderate	Use proper lifting techniques and body mechanics. Avoid attempts to move immovable objects. Use mechanical equipment where possible. Get plenty of rest. Personnel shall use proper lifting techniques such as keeping back straight, using legs to lift, limiting twisting, using mechanical means where possible, and getting help when handling bulky items.
Fire Hazard	Improper Refueling Procedures	Low	Prior to refueling any equipment shut off the equipment and allow the engine to cool. Ensure the fueling area is well ventilated. Do not smoke while refueling. Keep open flames and sparks away from area. Do not place hot equipment in dry grass where it may start a fire. Know where the fire extinguishers are located. Do not leave equipment unattended while fueling.
Release of stored energy, electrocution	Lock-out Tag-out	Moderate	Prior to performing maintenance or repairs on any equipment, all residual or stored energy must be properly bled off. Once this is accomplished, LOTO controls will be implemented to prevent inadvertent startup of the equipment during maintenance activities

TASK DESCRIPTION: Task 4. Locate and mark the location of underground utilities				Personnel: Three
HAZARD ANALYSIS CONDUCTED BY: Rick Hughes			DATE: April 14, 2016	
PHYSICAL HAZARD IDENTIFICATION:				
<input checked="" type="checkbox"/> PHYSICAL EXERTION	<input type="checkbox"/> HEAT STRESS	<input checked="" type="checkbox"/> COLD STRESS	<input type="checkbox"/> HEAVY EQUIPMENT	
<input type="checkbox"/> FIRE HAZARDS	<input checked="" type="checkbox"/> LIFTING HAZARDS	<input checked="" type="checkbox"/> SLIP, TRIP, OR FALL	<input type="checkbox"/> HIGH NOISE (> 85 dBA)	
<input type="checkbox"/> OVERHEAD UTILITIES	<input type="checkbox"/> EXCAVATION/TRENCHING	<input type="checkbox"/> CONFINED SPACE	<input checked="" type="checkbox"/> POISONOUS PLANTS	
<input type="checkbox"/> POISONOUS/HAZARDOUS ANIMALS	<input checked="" type="checkbox"/> ELECTRICAL	<input checked="" type="checkbox"/> HAND/POWER TOOLS	<input checked="" type="checkbox"/> PUNCTURE/LACERATION	
<input type="checkbox"/> OXYGEN DEFICIENT	<input type="checkbox"/> PRESSURIZED CONTAINERS	<input type="checkbox"/> EXPLOSIVE	<input type="checkbox"/> VISIBILITY	
<input checked="" type="checkbox"/> VEHICLE TRAFFIC	<input type="checkbox"/> WELDING, CUTTING, BRAZING	<input type="checkbox"/> GLARE/LIGHT HAZARDS	<input type="checkbox"/> SPLASH	
<input type="checkbox"/> GRINDING	<input type="checkbox"/> FLYING DEBRIS	<input checked="" type="checkbox"/> PINCH/GRAB/ROLL	<input type="checkbox"/> TEMPERATURE HAZARDS	
<input type="checkbox"/> OTHER (SPECIFY) : _____				
CHEMICAL HAZARD IDENTIFICATION:				
<input type="checkbox"/> CORROSIVE	<input type="checkbox"/> VOLATILE	<input type="checkbox"/> OXIDIZER	<input type="checkbox"/> TOXIC	
<input type="checkbox"/> RADIOACTIVE	<input type="checkbox"/> BIOLOGICAL	<input type="checkbox"/> INERT	<input type="checkbox"/> REACTIVE	
<input type="checkbox"/> FLAMMABLE	<input type="checkbox"/> COMBUSTIBLE	<input type="checkbox"/> NON-HAZARDOUS	<input type="checkbox"/> POISON A (GAS)	
<input type="checkbox"/> OTHER (SPECIFY) : _____				

PERSONAL PROTECTIVE EQUIPMENT:					
LEVEL OF PROTECTION	RESPIRATORY PROTECTION	PROTECTIVE CLOTHING	GLOVES	HEAD/FACE/EYE PROTECTION	FOOT PROTECTION
PRIMARY: D	None	Proper fitting long pants in good repair; minimum 4" sleeves, Class II high visibility vest.	Cut resistant Leather gloves	Hard Hat, Safety Glasses, face shield, hearing protection.	Steel toe work boot
CONTINGENCY: Modified D	None	Tyvek® Coverall w/Hood	Nitrile inner, Leather outer gloves	Hard Hat, Safety Glasses, Hearing Protection if necessary	Steel toe work boot

PPE:	Level D to Modified D	Date:	April 14, 2016
Hazard Rating:	Medium	Created by:	Rick Hughes
HAZARD	SOURCE	SEVERITY	CONTROL MEASURES
Electrocution	Buried Utilities	Moderate	At no time shall any attempt to locate a buried utility be made by using mechanically powered excavating equipment. Buried utilities shall be located by proper detection equipment. The local utility company and Public Works Department in Lewiston shall be contacted (716-754-8331) along with one call to Dig Safely New York (811) or 1-800-524-7603 will be made in advance of planned work activities and work areas will be marked out for all utility providers to clearly see and locate.
Struck By	Vehicle/Equipment Traffic	Moderate	Ground personnel will remain alert to vehicles and moving equipment. Personnel will wear high visibility class II vests. Vehicles will obey all speed limits and will be operated in a non-reckless manner.
Cold Stress	Environment	Low	Personnel shall be trained on the signs and symptoms of cold stress. An effective work/rest schedule will be implemented to regulate weather exposures. Fluids will be provided. Employees will be encouraged to refrain from alcohol use after work hours. The buddy system will be closely followed and personnel will closely monitor each other for signs and symptoms of cold stress.
Puncture / Laceration	Pinch Points / Hand Traps	Moderate	Proper hand protection will be worn to minimize the possibility of injuries due to cuts and abrasions. Potential pinch points will be identified and marked to avoid injury. Think before placing hands into hazards areas, near moving parts.

Back Injury	Moving equipment, lifting materials	Moderate	Use proper lifting techniques and body mechanics. Avoid attempts to move immovable objects. Use mechanical equipment where possible. Get plenty of rest. Personnel shall use proper lifting techniques such as keeping back straight, using legs to lift, limiting twisting, using mechanical means where possible, and getting help when handling bulky items.
Sting, rash, allergic reaction	Poison Ivy, stinging insects, wasps/bees	Low	Team members that are not allergic to poisonous vegetation and stinging insects should conduct a thorough survey of each work area prior to beginning task. Identify team members allergic to wasps/ bees or other environmental hazards. Pay close attention for evidence of poison ivy and wasp nests. Personnel who have experiences allergic reactions in the past should exercise caution. If unavoidable, protect skin when working in proximity to poison ivy. Use products such as Ivy Block or similar. Identify individuals allergic to bees or other environmental hazards.

TASK DESCRIPTION: Task 5. Installation of fencing around perimeter of site				Personnel: Five	
HAZARD ANALYSIS CONDUCTED BY: Rick Hughes				DATE: April 14, 2016	
PHYSICAL HAZARD IDENTIFICATION:					
<input checked="" type="checkbox"/> PHYSICAL EXERTION	<input type="checkbox"/> HEAT STRESS	<input checked="" type="checkbox"/> COLD STRESS	<input type="checkbox"/> HEAVY EQUIPMENT		
<input type="checkbox"/> FIRE HAZARDS	<input checked="" type="checkbox"/> LIFTING HAZARDS	<input checked="" type="checkbox"/> SLIP, TRIP, OR FALL	<input type="checkbox"/> HIGH NOISE (> 85 dBA)		
<input checked="" type="checkbox"/> OVERHEAD UTILITIES	<input type="checkbox"/> EXCAVATION/TRENCHING	<input type="checkbox"/> CONFINED SPACE	<input checked="" type="checkbox"/> POISONOUS PLANTS		
<input type="checkbox"/> POISONOUS/HAZARDOUS ANIMALS	<input checked="" type="checkbox"/> ELECTRICAL	<input checked="" type="checkbox"/> HAND/POWER TOOLS	<input checked="" type="checkbox"/> PUNCTURE/LACERATION		
<input type="checkbox"/> OXYGEN DEFICIENT	<input type="checkbox"/> PRESSURIZED CONTAINERS	<input type="checkbox"/> EXPLOSIVE	<input type="checkbox"/> VISIBILITY		
<input checked="" type="checkbox"/> VEHICLE TRAFFIC	<input type="checkbox"/> WELDING, CUTTING, BRAZING	<input type="checkbox"/> GLARE/LIGHT HAZARDS	<input type="checkbox"/> SPLASH		
<input type="checkbox"/> GRINDING	<input checked="" type="checkbox"/> FLYING DEBRIS	<input checked="" type="checkbox"/> PINCH/GRAB/ROLL	<input type="checkbox"/> TEMPERATURE HAZARDS		
<input type="checkbox"/> OTHER (SPECIFY) : _____					
CHEMICAL HAZARD IDENTIFICATION:					
<input type="checkbox"/> CORROSIVE	<input type="checkbox"/> VOLATILE	<input type="checkbox"/> OXIDIZER	<input type="checkbox"/> TOXIC		
<input type="checkbox"/> RADIOACTIVE	<input type="checkbox"/> BIOLOGICAL	<input type="checkbox"/> INERT	<input type="checkbox"/> REACTIVE		
<input type="checkbox"/> FLAMMABLE	<input type="checkbox"/> COMBUSTIBLE	<input type="checkbox"/> NON-HAZARDOUS	<input type="checkbox"/> POISON A (GAS)		
<input type="checkbox"/> OTHER (SPECIFY) : _____					
PERSONAL PROTECTIVE EQUIPMENT:					

LEVEL OF PROTECTION	RESPIRATORY PROTECTION	PROTECTIVE CLOTHING	GLOVES	HEAD/FACE/EYE PROTECTION	FOOT PROTECTION
PRIMARY: D	None	Proper fitting long pants in good repair; minimum 4" sleeves, Class II high visibility vest.	Cut resistant Leather gloves	Hard Hat, Safety Glasses, face shield, hearing protection.	Steel toe work boot
CONTINGENCY: Modified D	None	Tyvek® Coverall w/Hood	Nitrile inner, Leather outer gloves	Hard Hat, Safety Glasses, Hearing Protection if necessary	Steel toe work boot

PPE:	Level D to Modified D	Date:	April 14, 2016
Hazard Rating:	Medium	Created by:	Rick Hughes
HAZARD	SOURCE	SEVERITY	CONTROL MEASURES
Shock / electrocution	Utilities – underground / overhead	Moderate	Identify all on-site utilities prior to any site activities. The local utility company and Public Works Department in Lewiston shall be contacted along with one call to Dig Safely New York (811) or 1-800-524-7603 will be made in advance of planned work activities and work areas will be marked out for all utility providers to clearly see and locate.
Physical Exertion/Lifting Hazards	Fencing Materials	Low	Use proper lifting techniques and body mechanics. Use mechanical equipment where possible to move and stage fencing materials. Get plenty of rest. Personnel shall use proper lifting techniques such as keeping back straight, using legs to lift, limiting twisting, using mechanical means where possible, and getting help when handling bulky items.
Caught-in / between	Heavy Equipment	Moderate	A communication system will be developed and instituted between ground personnel and the equipment operator. At no time will any load be swung above or suspended above any ground personnel. Personnel will signal the operator and wait for an acknowledgement and the equipment to come to a complete stop, prior to approaching.

Cold Stress	Seasonal temperatures / Personal protective equipment	Low	Personnel shall be trained on the signs and symptoms of cold stress. An effective work/rest schedule will be implemented to regulate weather exposures. Fluids will be provided. Employees will be encouraged to refrain from alcohol use after work hours. The buddy system will be closely followed and personnel will monitor each other for the signs and symptoms of cold stress.
Puncture / Laceration	Hand tools, pinch points, and potential hand traps during fence installation	Moderate	Proper hand protection will be worn to minimize the possibility of injuries due to cuts and abrasions. Always use the right tool for the right job, inspect all tools and equipment prior to beginning task. Potential pinch points will be identified and marked to avoid injury. Think before placing hands into hazards areas, near moving parts.
Slips, trips, Falls	Site terrain near fence installation area	Moderate	A thorough inspection of fence installation work area will be conducted to identify any concerns and hazards and will be continued thereafter proactively. Personnel will use caution while installing fencing and maintain awareness of changes in elevation, holes, etc. Proper housekeeping procedures should be followed at all times. If holes or other trip hazards cannot be corrected they should be marked and identified with caution tape or some other means.
Hearing Loss	Loud noises	Low	Use of hearing protection will be worn when employees are exposed to high noise levels (greater than 85 dBA over an 8-hour workday). If you have to raise your voice to speak to your co-worker from a distance of approximately 3 feet away in order to be heard / understood, you should wear hearing protection.
Poisonous Vegetation / Stinging insects	Poisonous vegetation present around perimeter during fence installation	Moderate	Prior to fence installation the area should be inspected for poisonous vegetation and other potential hazards. Under no circumstances should personnel that are typically allergic participate in these initial hazard assessments. Poison Ivy as well as wasps/hornets/bees and other stinging insects encountered on site present a serious hazard to those workers who are allergic. Employees whom are allergic should notify the Response Manager/co-workers prior to starting operations and make known the degree of allergic reactions experienced in the past, and inform others of the location of medicine/shots that need to be taken in the event of being stung. Personnel shall IMMEDIATELY notify the RM/SSO of any injury, bite, or sting regardless of how minor or insignificant it appears.

TASK DESCRIPTION: Task 6. Project Closeout / Demobilization		Personnel: Three			
HAZARD ANALYSIS CONDUCTED BY: Rick Hughes		DATE: April 14, 2016			
PHYSICAL HAZARD IDENTIFICATION:					
<input checked="" type="checkbox"/> PHYSICAL EXERTION <input type="checkbox"/> FIRE HAZARDS <input checked="" type="checkbox"/> OVERHEAD UTILITIES <input type="checkbox"/> POISONOUS/HAZARDOUS ANIMALS <input type="checkbox"/> OXYGEN DEFICIENT <input checked="" type="checkbox"/> VEHICLE TRAFFIC <input type="checkbox"/> GRINDING <input type="checkbox"/> OTHER (SPECIFY) : _____	<input type="checkbox"/> HEAT STRESS <input checked="" type="checkbox"/> LIFTING HAZARDS <input type="checkbox"/> EXCAVATION <input checked="" type="checkbox"/> ELECTRICAL <input type="checkbox"/> PRESSURIZED CONTAINERS <input type="checkbox"/> WELDING, CUTTING, BRAZING <input type="checkbox"/> FLYING DEBRIS	<input checked="" type="checkbox"/> COLD STRESS <input checked="" type="checkbox"/> SLIP, TRIP, OR FALL <input type="checkbox"/> CONFINED SPACE <input checked="" type="checkbox"/> HAND/POWER TOOLS <input type="checkbox"/> EXPLOSIVE <input type="checkbox"/> GLARE/LIGHT HAZARDS <input type="checkbox"/> PINCH/GRAB/ROLL	<input checked="" type="checkbox"/> HEAVY EQUIPMENT <input type="checkbox"/> HIGH NOISE (> 85 DBA) <input type="checkbox"/> POISONOUS PLANTS <input checked="" type="checkbox"/> PUNCTURE/LACERATION <input type="checkbox"/> VISIBILITY <input checked="" type="checkbox"/> SPLASH <input type="checkbox"/> TEMPERATURE HAZARDS		
CHEMICAL HAZARD IDENTIFICATION:					
<input type="checkbox"/> CORROSIVE <input type="checkbox"/> RADIOACTIVE <input type="checkbox"/> FLAMMABLE <input type="checkbox"/> OTHER (SPECIFY) : _____	<input type="checkbox"/> VOLATILE <input type="checkbox"/> BIOLOGICAL <input type="checkbox"/> COMBUSTIBLE	<input type="checkbox"/> OXIDIZER <input type="checkbox"/> INERT <input type="checkbox"/> NON-HAZARDOUS	<input type="checkbox"/> TOXIC <input type="checkbox"/> REACTIVE <input type="checkbox"/> POISON A (GAS)		
PERSONAL PROTECTIVE EQUIPMENT:					
LEVEL OF PROTECTION	RESPIRATORY PROTECTION	PROTECTIVE CLOTHING	GLOVES	HEAD/FACE/EYE PROTECTION	FOOT PROTECTION
PRIMARY: Level D	None	Proper fitting long pants in good repair; minimum 4" sleeves, Class II high visibility vest	Leather work-gloves	Hard Hat, Safety Glasses w/ side shields, Hearing Protection if necessary	Safety toe work boots.
CONTINGENCY: Modified D	None	Tyvek® (all seams must be taped/sealed) High visibility Class II vest worn over the coveralls	Inner Nitrile gloves, outer Leather work-gloves	Hard Hat, Safety Glasses w/ side shields, Hearing Protection if necessary	Safety toe work boots, with covers.

ADDITIONAL INFORMATION: Only qualified personnel are authorized to disconnect electrical circuits or repair any electrical equipment Ground fault circuit interrupters (GFCI) will be used on all temporary electrical circuits (i.e., generators). Use proper lifting techniques and body mechanics when loading equipment and materials during demobilization, use mechanical equipment where possible.					
ADDITIONAL MODIFICATIONS/ENGINEERING CONTROLS/INFORMATION: Take extra precaution in the break down and storage of equipment and materials for transport, insuring all is properly secured and tied down prior to demobilization. Locate a flat, level, open area clear of overhead utilities and obstructions to load equipment and materials for transport, using a spotter to assist in backing / loading. After site demobilization is accomplished, prior to personnel leaving the site, perform a comprehensive safety inspection of all vehicles and transports. Always wear class II high visibility vests when exposed to vehicular traffic. Vehicles will obey all speed limits and will be operated in a non-reckless manner. No vehicle will be overloaded or loaded in such a manner as to obscure the view of the driver.					

5 RADIOLOGICAL SURVEYS

Radiological surveys will be performed by WESTON Solutions to evaluate radiological conditions and provide technical guidance. Radiological surveys will identify if additional control procedures are required or an upgrade in personal protective equipment. An ATV mounted Ludlum 2241 will also be used along with a buggy mounted Ludlum 2241 to conduct surveys in narrow and cleared areas. Radiological conditions are not anticipated to present a significant exposure hazard to on-site workers during this phase of operations. A conservative approach will be taken to ensure any potential radiological exposures are documented. All team members will wear a personal monitoring device during working hours on-site. Additionally, any person, including visitors, who enter a predetermined radiation area whose access is controlled or who is likely to receive greater than 10% of a permissible limit, shall wear appropriate devices for measuring personnel beta/gamma radiation exposure.

5.1 PERSONAL MONITORING DEVICES

Personnel monitoring devices will be worn by all GES team members to record all external radiation dose obtained while performing tasks on the HTC Site. The film badge dosimeters shall be worn on the front of the body between the neck and the waist. Monitoring devices are to be left at the site at the end of each working day in a location removed from any source material. The Response Manager will issue and collect the monitoring devices each day. The dosimeters will be issued by the RM at the start of each work shift and each team member will return their device to the RM at the end of the work day. The RM will secure the dosimeters in a secure storage location during non-working hours to prevent unauthorized tampering of the devices. All dosimeters are permanently labeled with the individual's name, and protected by a plastic enclosure. Each team member shall keep the dosimeter clean and free of soil or dust, by wiping any such dirt off with a clean paper towel. A reputable outside vendor will supply the badges and will perform laboratory analyses. The laboratory is accredited by the National Institute of Standards and Technology through the National Voluntary Laboratory Accreditation Program NVLAP Lab Code 100556-0.

5.2 AIR MONITORING

Air monitoring and sampling will be conducted by WESTON Solutions using a Radeco air sampler and three DataRAMs for particulates. For further information on the air monitoring strategy for the HTC Site refer to WESTON Solutions Air Monitoring Plan.

5.3 HEALTH AND SAFETY ACTION LEVELS

5.3.1 Action Level

Current guidelines are based on the conservative assumption that there is no safe level of exposure. In other words, even the smallest exposure has some probability of causing a stochastic effect, such as cancer. This assumption has led to the general philosophy of not only keeping exposures below recommended levels or regulation limits but also maintaining all exposure "as low as reasonable achievable" (ALARA). ALARA is a basic requirement of current radiation safety practices. It means that every reasonable effort must be made to keep the dose to workers and the public as far below the required limits as possible.

An action level is a level at which increased controls are required due to the concentration of contaminants in the work area or other environmental conditions, the concentration level (above background) and the ability of the PPE to protect against that specific contaminant determine each action level.

- OSHA PEL of 5,000 mrem/year (5 rem/year or 1 ¼ rem/quarter)

6 SITE CONTROL

To prevent migration of contamination from personnel and equipment, work areas will be clearly specified as designated below prior to beginning operations. Each work area will be clearly identified using signs or physical barriers surrounding the excavation area.

- Exclusion Zone (Red tape or physical barricade with signage)
- Contamination Reduction Zone (Yellow tape or physical barricade with signage)
- Support Zone (Proper signage designating the hazards and contact information.)

A log of all personnel visiting, entering or working on the site shall be maintained by the site SSO. A separate log will be kept in the CRZ near the entrance to the EZ / which personnel shall sign in and out of the exclusion zone. No visitor will be allowed in the EZ without showing proof of training and medical certification, per 29 CFR 1910.120(e), (f). Visitors will attend a site orientation given by the SSO and sign the site specific HASP.

6.1 SUPPORT ZONE

The support zone will be located in an area that has been determined contamination free or “clean” by supporting analytical data or other objective criteria. Site break areas, toilet facilities, administrative, and other support functions will take place in this zone. Contaminated PPE and/ or equipment are prohibited in this area.

6.2 CONTAMINATION REDUCTION ZONE

The contamination reduction zone (CRZ) is the area between the exclusion zone and support zone designated for equipment and personnel decontamination. The CRZ may also be a staging area for site tools, emergency equipment, containment equipment, additional PPE, sampling equipment, and cartridge changes. All personnel and/ or equipment exiting the exclusion zone must enter the CRZ for decontamination before entering the support zone. PPE dress outs must be accomplished in the support zone before entry into the CRZ. Contaminated PPE will remain in the CRZ or the exclusion zone until properly disposed. The location of the CRZ will be determined mainly by the distance needed to prevent a potential release, explosion, or other hazard in the exclusion zone from affecting personnel in the CRZ and support zone. Additional toilet and hand washing facilities may be located in this area. No eating, drinking, chewing of tobacco or gum, smoking or applying makeup (lip balm, sun screen, etc...) is allowed in this area.

6.3 EXCLUSION ZONE

Only authorized personnel that meet all the requirements as stated in Section 1.0 “Introduction and Site Entry Requirements” of this HASP and other applicable requirements of 29 CFR 1910.120 are allowed entrance. The exclusion zone will be well delineated by means of barricades, caution tape, fencing, or other highly visible and physical barriers.

6.4 BUDDY SYSTEM

The Buddy System shall be used for all entries into the exclusion zone. This is a system of organizing employees into work teams in such a manner that each team member can observe the activities of each other. Thus, in case of an emergency, the entire team can account for the location and activity of each team member. All personnel will be instructed to look for and inform each other of any changes in their physical or mental condition during the performance of all field activities.

6.5 VISITORS

All visitors entering the CRZ or EZ must provide all required training and medical monitoring documentation before arrival on-site, if possible. The OSC/Response Manager must approve the site visit and insure visitors have the appropriate personal protective equipment. A safe route shall be established through the site and a safe distance from on-going operations. Visitors will be escorted at all times in the CRZ or EZ. All visitors shall wear:

- Safety-Toe Shoes or Safety-Toe work Boots
- Hard Hat
- Safety Glasses
- White Protective Coveralls (If required)

6.6 SITE MAPS

Site maps depicting the work areas, contaminated areas, EZ, CRZ, support zone, command post, and the primary and contingency assembly areas will be developed and posted on site prior to work. The map will include designated work areas, escape routes, emergency assembly areas (primary and contingency), and hazardous and utility layouts. Additionally, a map depicting the hospital driving route (included as an attachment to this SSHSP) will also be posted at the site (copies in site vehicles) and reviewed with personnel during the site orientation.

6.7 SITE COMMUNICATION

Site communications on the Holy Trinity Cemetery Site will be conducted via cell phones. To be effective, all communication commands must be prearranged and all signals recognized by all on-site personnel in advance. As a contingency measure, air horns will be used to alert all on-site personnel to potential emergencies. The below communication commands / signals will be discussed during site orientation and reinforced occasionally during safety meetings to ensure site personnel are familiar with the prearranged signals. The prearranged air horn signals are as follows:

- 1 Blast - Attention, Contact command post.

- 2 Blasts - Emergency, Assemble at decontamination line.
- 3 Blasts - General Emergency, Evacuate site immediately and meet at the designated assembly area.

6.8 SITE INSPECTIONS

Site safety inspections will be conducted on a daily basis. All formal inspections will be conducted at least weekly and documentation kept on job file for review by the Health and Safety Manager.

6.9 TRAFFIC CONTROL

The RM/ SSO shall ensure that traffic patterns and roadways are designed and operated in a manner that minimizes the potential for vehicle related accidents. The RM shall ensure that the area is adequately delineated and barricaded to prevent unauthorized personnel and vehicles at a safe distance from the work area. Key elements that will be considered and reviewed include:

- Minimize the potential for operating vehicles in reverse (i.e., backing)
- Use cones and flaggers when necessary to warn traffic of work.
- Avoid head-on traffic patterns. Where practical, establish traffic patterns that are circular.
- Minimize intersections when creating traffic plans.
- If traffic pattern is not obvious, post directional signs to reduce potential of turns into unapproved/unsafe areas.
- Avoid areas with overhead obstructions.
- Where overhead obstructions cannot be avoided, post warning signs and/ or construct warning devices.
- Instruct all drivers on proper procedures and speed limits.

7 DECONTAMINATION

The decontamination process is designed to remove any contamination acquired in the exclusion zone and to keep the spread of contaminated materials from entering the support area. Care must be exercised to ensure that contaminants are removed from personnel and equipment before the personnel or equipment leaving the site.

7.1 PERSONNEL DECONTAMINATION

The method of decontamination which will be utilized on the HTC Site will be the orderly and controlled removal of contaminated layers of personal protective clothing and disposing in proper containers. The RM/SSO will ensure that all site personnel are familiar with personnel decontamination procedures as listed below. All personnel wearing PPE in a work area (EZ) must undergo decontamination prior to entering the SZ. Personnel will perform the following decontamination procedures which consist of a series of procedures performed in a specific sequence:

- The first station of the decontamination line will consist of personnel dropping any tools or equipment for later decontamination on provided table or poly sheeting.

- Personnel will then have an amended water rinse applied on the outer suit, gloves and boot covers.
- Disposable boot covers and outer gloves will then be removed and placed in proper containment.
- The Tyvek coveralls will then be removed using slow, sure movements, gently rolling the coveralls down as they are removed. Rolling the coveralls while removing them keeps the contaminant covered side in as it is tightly rolled all the way down to the ankles and removed. The rolled up garment can then be placed directly into the labeled PPE containment drum, followed by the removal of the inner gloves.
- Respirators will be removed last.
- Personnel will then thoroughly shower in the decontamination trailer in the CRZ.
- Disposable protective clothing must be discarded and disposed of properly. All used protective clothing shall be deposited in labeled containers or impermeable bags for proper disposal.

Direct frisking will be performed using calibrated and daily source-checked instrumentation capable of detecting beta and gamma radiation to ensure personal decontamination procedures were effective. The RM/SSO will be notified immediately of any emergency. An emergency eyewash station capable of providing the OSHA/ANSI required 0.4 gallon/minute flow for 15 minutes will be located at the CRZ and in areas where splash hazards may be present. All site employees will wash hands and face before leaving the decontamination area.

7.2 EQUIPMENT DECONTAMINATION

The decontamination process is designed to remove any contamination acquired in the EZ and to keep the spread of contaminated materials from entering the support area. Care must be exercised to ensure that contaminants are removed from all equipment before leaving the site. All equipment and tools that have been contaminated shall be decontaminated prior to leaving the area. If the level of vehicle contamination is low, decontamination may be limited to rinsing tires and wheel wells with an appropriate detergent and water. All wastewater generated during decontamination will be collected for disposal. Contamination surveys may be conducted on equipment prior to leaving the controlled area (skid steer with brush hog attachment). Contamination surveys shall be accomplished using direct frisk and removable contamination (smear) survey methods. The direct frisking method is performed using calibrated and daily source-checked instrumentation capable of detecting beta and gamma radiation. The removable contamination survey method employs a smear that collects removable contamination from potentially contaminated equipment surfaces. The smear samples are then analyzed with a calibrated field instrument. The following supplies will be available to perform decontamination activities:

- Wash and rinse buckets
- Tap water and phosphate-free detergent (i.e., Alconox)
- Scrub brushes
- Distilled/deionized water
- Pressure washer/steam cleaner

- Paper towels and plastic garbage bags.
- Appropriate drum/container to store radiological contaminated PPE

8 SANITARY FACILITIES AND LIGHTING REQUIREMENTS

Appropriate sanitary facilities will be provided along with hand wash stations on the Holy Trinity Cemetery Site. The requirements for sanitary facilities on site will meet all applicable standards found in CFR 29 1910.120 (n) (3) and the GES operating procedure.

8.1 HYGIENE

The requirements for sanitary facilities on site will meet all applicable standards found in CFR 29 1910.120 (n) (3) and GES operating procedure. One sanitary facility shall be provided for every 15 employees.

9 EMERGENCY CONTINGENCY PLAN

Emergency response to potential dangers will be discussed with all personnel prior to beginning planned work activities on the HTC Site. The RM/SSO shall assign individual team members roles and responsibilities to carry out in the event of an emergency. All team members shall participate in the initial Site specific emergency response planning and discussion to ensure full understanding of procedures, emergency assembly areas (primary and contingency), personal roles and responsibilities, Site communications, location of emergency equipment / First aid / eye wash stations.

9.1 ACTIVATION

The contingency plan may be activated by any of the following conditions:

1. An injury requiring off-site response occurs.
2. Someone observes the development of an IDLH situation.
3. There is a weather-related emergency.
4. There is a major release, explosion, or fire.

9.2 EMERGENCY COMMUNICATIONS

Site communications on the Holy Trinity Cemetery Site will be conducted via cell phones. As a contingency measure, air horns will be used to alert all on-site personnel to potential emergencies. The below communication commands / signals will be discussed during site orientation and reinforced occasionally during safety meetings to ensure site personnel are familiar with the prearranged signals. The prearranged air horn signals are as follows:

- 1 Blast - Attention, Contact command post.
- 2 Blasts - Emergency, Assemble at decontamination line.
- 3 Blasts - General Emergency, Evacuate site immediately and meet at the designated assembly area.

9.3 EVACUATION ROUTES AND ASSEMBLY AREAS

The designated assembly area and emergency evacuation routes is identified on the site map, and posted in the office(s) and other strategic locations as necessary. All personnel on site will be briefed on these and all emergency procedures as part of the initial safety briefing.

9.4 EMERGENCY PROCEDURES

9.4.1 CRZ or EZ Injury

Operations will cease and area will be cleared for emergency personnel. A designated decontamination team will decontaminate to the extent possible before arrival of off-site responders and movement to the support zone. If the condition is serious, a partial decontamination will be completed if possible. First aid will be administered until professional medical assistance arrives. If movement will aggravate the injury, the injured personnel will be left in place. If the injured personnel are at a greater risk inside the exclusion zone or emergency personnel are not able to enter the zone, then movement of the injured personnel becomes unavoidable. Care will be exercised to prevent spread of contamination. A copy of the suspected contaminants is to be provided to the responding medical team for transport back to the hospital. Rescue of downed personnel where the reason of that occurrence is not known should be performed in the next higher level of PPE.

9.4.2 Support Zone Injury

The Response Manager / Site Safety Officer will assess the nature of the injury. If injury does not affect performance of personnel, operations may continue. If injury increases risk to others, operations will cease, until risk is removed or minimized.

9.4.3 PPE Failure

In the event of PPE failure or alteration, that person and their designated buddy will immediately leave the EZ and assemble at the decontamination line. Re-entry will not be permitted until the equipment has been repaired or replaced.

9.4.4 Other Equipment Failure

In the event of equipment failure other than PPE, the RM/SSO shall determine if the problem affects the safety of personnel or prevents the safe completion of the tasks. If so, the operation may cease until repairs/replacements are made and the risk to safety is removed.

9.4.5 Fire or Explosion

Fire and Explosion Hazards are not anticipated to be a concern during the planned work activities on the HTC Site. Adequate multi-purpose (A, B, C) fire extinguishers (20lbs) will be located onsite at each major project task at all times. The local Fire Department in Lewiston New York (Lewiston Volunteer Fire Department) area will be notified by the Response Manager of the planned work activities to allow the FD to conduct preplanning as necessary in order to provide a more timely response in the event of an emergency. In the event of a fire not involving or in the immediate vicinity of hazardous materials, the RM/SSO will determine if the fire can be suppressed. If the fire is small and can be safely addressed, a team of properly trained personnel

will secure the situation. If the event is uncontrollable; involving volatile flammable liquids, or in the immediate vicinity of, all personnel will be immediately evacuated to the predetermined upwind emergency assembly area and the Lewiston Fire Department will be notified.

Emergency response to potential dangers, such as fires and spills will be discussed with all personnel prior to beginning planned work activities on the HTC Site. The RM/SSO shall assign individual team members roles and responsibilities to carry out in the event of an emergency. All team members shall participate in the initial Site specific emergency response planning and discussion to ensure full understanding of procedures, emergency assembly areas (primary and contingency), equipment, and personal responsibilities. GES personnel may assist firefighters if required as well as all emergency responders, with information related to the incident. All fires, regardless of size, must be immediately reported. If the event is off-site, employees shall be alerted to the situation and assemble at the decontamination line, or the designated assembly area. A decision will be made as to stopping the work and evacuating or continuing work with a heightened awareness. In any case, if the incident is rapidly progressing and the site is downwind or otherwise in the path of the fire, the site shall be evacuated immediately.

9.4.6 Spill, Leak or Release

If the event is on site, operations will cease and a designated suppression team will assemble upwind of the event. All non-essential personnel in the area will meet at the decontamination line or the designated assembly area depending on the alarm given. The RM/SSO will attempt to determine the nature and extent of the release by air monitoring readings. The RM/SSO will direct the suppression crew in making the necessary attempts to stop the release and initiate clean-up operations. Operations will remain suspended until the incident is stabilized and no longer poses a threat to personnel

9.5 POST EMERGENCY

Anytime the emergency contingency plan is activated, the incident must be critiqued to assure proper procedures were followed, corrective action plans have been established and site operations are safe to restart work. The post incident review committee shall consist of no less than the following members:

- EPA On-Scene Coordinator Eric Daly
- Response Manager Kevin Shaver
- Health and Safety Manager Rick Hughes
- Operations Manager Pete Johnson
- Regional Management
- Others as necessary

The review shall take place either in person or via conference call within five (5) days of the event. This is to allow time to assure all investigations are as complete as possible and written reports submitted. The review should take place before the activity which triggered the activation is restarted to assure all measures are in place to prevent, or reduce the potential of, recurrence.

9.6 EMERGENCY EQUIPMENT

The following equipment will be located on the job site:

- First Aid Kit (Office Trailer and company vehicles)
- Emergency Eyewash (capable of providing a minimum 15 minutes of 0.4 gallons/minute)
- Portable emergency eyewash at work area
- ABC Fire Extinguishers, located at:
 - Decontamination Area (minimum 10 pound ABC)
 - Surrounding the Excavation (minimum 20 pound ABC)
 - Each Piece of Equipment (including company vehicles.) Minimum 5 Pound on equipment; 2 ½ pound company trucks.
- Chemical Sorbents Pads
- Portable Air Horns

9.7 EMERGENCY TELEPHONE NUMBERS

CHEMTREC	800-424-9300
National Response Center	800-424-8802
National Poison Control Center	800-362-9922
Federal Emergency Management Agency	202-646-2400
Centers for Disease Control	800-232-4636
Poison Control Center	800-222-1222

Emergency Services

Emergency Fire	911
Emergency Police	911
Emergency Medical Services (EMS)	911

US Environmental Protection Agency

US EPA On-Scene Coordinator Eric Daly	908-420-1707
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GES

GES Environmental Services, Inc.	800-548-6938
GES Response Manager Kevin Shaver	302-518-1910
GES Health & Safety Manager Rick Hughes	302-803-1205

Local Non-Emergency Numbers

Lewiston Police Department	716-754-8477
Lewiston Volunteer Fire Department	716-754-2180
Niagara County Sheriff's Department	716-438-3393
Lewiston Public Works Department (Terry Brolinski)	716-754-8331

(*) Hospital: Mount St. Mary's Hospital

716-297-4800

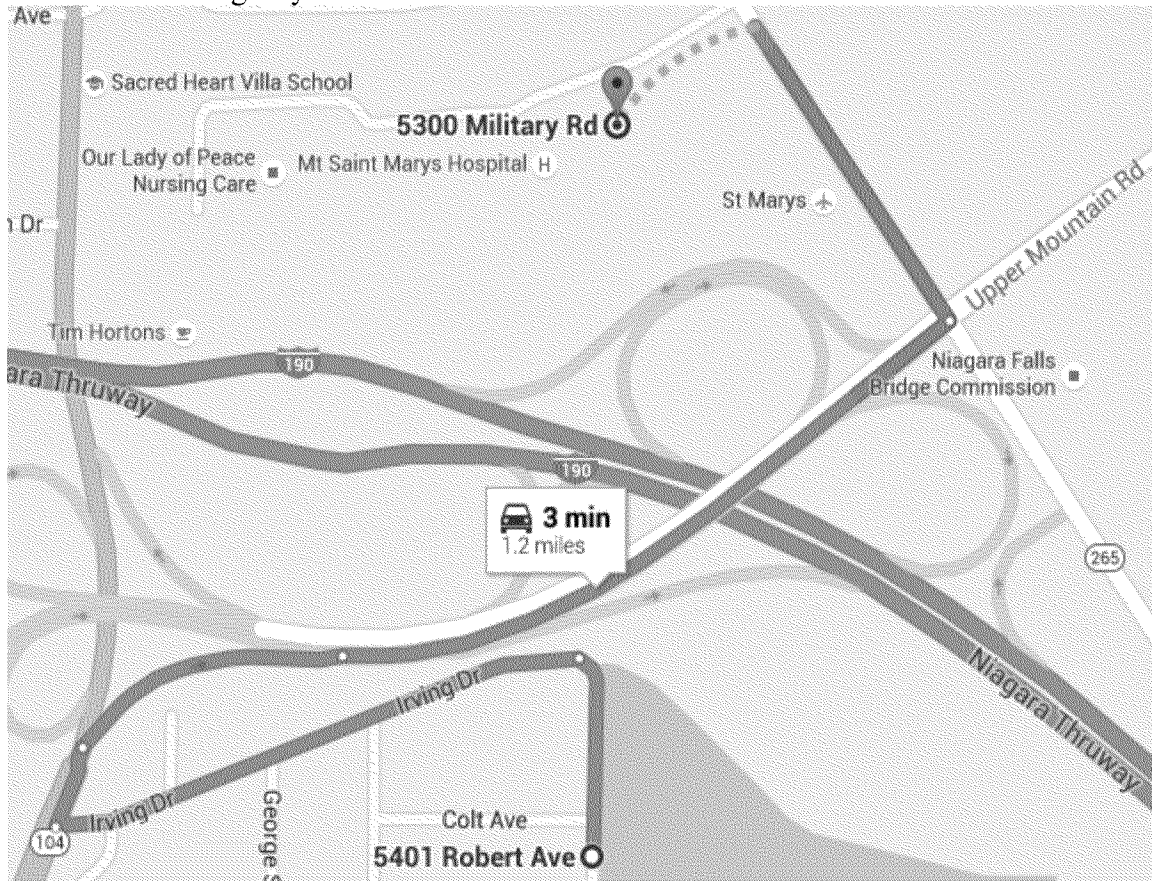


5300 Military Road
Lewiston, New York, 14092

The above emergency agencies shall be contacted and notified on the specific hazards on this project. Coordination for special emergency response requirements with these agencies shall be completed upon arrival.

9.8 MOUNT ST. MARY'S HOSPITAL DIRECTIONS

The Mount St. Mary's Hospital is located at 5300 Military Road, Lewiston, New York 14092 and the non-emergency contact number is: 716-297-4800.



START: Holy Trinity Cemetery Site, 5401 Robert Avenue, Lewiston, NY 11542.

- | | |
|--|-----------|
| 1. Head north on Robert Avenue toward Colt Avenue | 0.1 miles |
| 2. Robert Avenue turns left and becomes Irving Drive | 0.3 miles |
| 3. Turn right onto NY-104 East | 240 feet |
| 4. Take the I-190 exit toward Canada / Buffalo | 0.2 miles |
| 5. Continue onto Upper Mountain Road | 0.2 miles |
| 6. Turn left onto Ny-265, Hospital will be on the left | 0.2 miles |

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APPENDIX A
Safety Data Sheets

APPENDIX B

